CENTRAL UTAH WATER CONSERVANCY DISTRICT
CWP HIGH HEAD WELL PUMP HOUSE PROJECT
WELLS #7, #16, AND #17
June 2, 2023

DOCUMENT 00 91 13.1
ADDENDUM NO. 1

PART 1 – GENERAL

A. The following ADDENDUM (with attachments and drawings) shall be made part of the Bidding Documents, and the bidder shall acknowledge receipt thereof on page 2 of the BID FORM.
B. This addendum does not change the bid date. It remains on Wednesday, June 15, 2023, at 2:00 P.M.

1.1 DOCUMENT INCLUDES

A. Changes to the Bid Documents.

1.2 CONSTRUCTION CONTRACT

A. The Construction Contract is known as **CENTRAL UTAH WATER CONSERVANCY DISTRICT, CWP HIGH HEAD WELL PUMP HOUSE PROJECT – WELLS #7, #16, AND #17.**

1.3 BID PERIOD QUESTIONS AND ANSWERS

A. **Question**: Please clarify when the CUWCD's 48" pipeline is to be down for servicing to allow connection for Well 16.
Response: The 48" pipeline will be shut down sometime between January and March of 2024, for a period of 5 consecutive days.

B. **Question**: Uncompacted fill soil exists at all three well sites based on the geotechnical report for each site. This material is to be removed and replaced as indicated in the specifications and drawings. It was mentioned in the pre-bid conference that estimated cut and fill quantities have been made, but that actual quantities will be determined by pre- and post-surveys of each site. Bidders asked if the OWNER or CONTRACTOR will be required to provide the surveys.
Response: Surveys are to be provided by CONTRACTOR.

C. **Question**: Who is responsible for providing special inspections, OWNER or CONTRACTOR.

Response: Owner shall contract for and pay for special inspections. However, CONTRACTOR is responsible for arranging for special inspections and coordination with special inspectors as if the contract is through CONTRACTOR. CONTRACTOR shall ensure that all special inspections are completed and corrections required by the special inspections are made.

D. **Question:** When is the last day OWNER will entertain questions regarding the Bid.
Response: OWNER will accept and respond to questions until end of day on June 7, 2023.

E. **Question:** Are there any anticipated issues with regulated soils for the pump-to-waste line from Well 16 to Well 12?
Response: OWNER is not aware of any regulated soils issues along the pipeline route for the Well 16 pump-to-waste pipeline. This pipeline will be located in an easement owned by OWNER and in which OWNER has constructed their existing 48" pipeline.

F. **Comment:** OWNER currently has camera poles at Wells 7 and 17. Poles consist of an I-beam 40' long, with 10' buried at Well 7 and Well 17. At the end of the project, CONTRACTOR shall remove both poles and salvage them to OWNER.

G. **Question**: There are some electrical equipment with very long lead times that may exceed designated Milestone Schedules in the Bid Form. How should BIDDER deal with liquidated damages in their bid, knowing that a particular item may exceed the designated Milestone date and make it impossible to meet that designated date?
Response: BIDDERS have indicated that certain electrical equipment may have very long order times. For example, transformer 12.47kV to 480 Volt up to 2.5 years. From a supplier contacted by ENGINEER, 15 kV switchgear is currently 36 to 40 weeks, and the VFD would be out 44 to 54 weeks. The generator and automatic transfer switch for Well 16 could also be longer lead items. The schedule for Well 16 is critical to OWNER. OWNER has recently completed construction on Wells 8, 9 and 10. Due to water quality issues these wells have not been placed into service, pending construction of a water polishing plant. Existing electrical equipment on these three wells is compatible for Well 16. If long lead electrical items such as the transformer are not available for timely completion of Well 16 in accordance with the Milestone Schedule listed in Section 00 41 13 – Bid Form, electrical equipment from Existing Well 10 may be moved to Well 16 by CONTRACTOR. New equipment shall still be ordered and installed on Well 10 to replace equipment moved to Well 16. Project Milestone dates for Wells 7 and 17 have been moved to March through May of 2026 to accommodate these long lead electrical items. Please see the attached modified Bid Form.

H. **Question:** What color are the Atlas units?
Response: As indicated on Drawings A-4 and A-5, the color of the Atlas units will be selected by OWNER during construction.

I. **Question:** On Sheet C-4 (Pumphouse #7) Are we running the 4" C900 pipe from the Sump Vault to the 60" manhole? There isn't anything on the plans.
Response: No, we are not running the Well 7 - 4" C900 pipe from the Sump Vault to the 60" manhole. Please see Drawing C-13 – Well #7 Floor Plan. The pipe runs to and discharges into the pump-to-waste box on the east side of the building at Well 7.

J. **Question:** A note on S-3, S-8, & S-13 says to extend concrete floor to edge of building and to hold foundation walls down 6" to allow for the floor. Details on S-18 show foundation wall 8" above concrete floor. Please clarify.
Response: Detail S-18 is correct. The note on Drawings S-3, S-8 and S-13 applies only to the door thresholds and should state: "Concrete floor slab at door thresholds only shall extend to outside edge of building. Hold foundation wall down to account for 6" slab over top."

- **Question:** Is a surge tank using bladder technology rather than air over liquid acceptable for the bid?
Response: In accordance with the contract documents, "equals" or "substitutes" will only be considered after the award of the bid. Contractors are instructed to carry the cost of the listed products or manufacturers in their bid in the event that a proposed "equal" or "substitutes" is not approved. See the following references in the contract documents regarding proposed "equals."

  00 21 13-5 Instructions to Bidders, Paragraph 15.5
  00 70 00-31 General Conditions, Paragraph 7.05
  00 73 00-21 Supplementary Conditions, Paragraph SC-7.05 and SC-7.06.

PART 2 – CHANGES

Addendum to include Location and Description of Change:

Item	Location	Description of Change
1	00 41 13	Replaced Specification Section 00 41 13 – Bid Form with the attached revised Section 00 41 13 – Bid Form. Revised Mile Stone information and added bid items to Well 16 Schedule of Values.
2	03 30 00	Add the following to Table in 3.13.B of Specification 03 30 00: Covered water holding tanks and basins/covered, Type of Finish: W5, Required Form Tolerance: W-A.
3	22 11 24	Replace Specification Section 22 11 24 with the attached revised Specification Section 22 11 24.
4	31 23 16	Revise paragraph 3.01.E of Specification Section 31 23 16 as follows: E. Existing fill material at Well 16 is regulated and will be removed by others. Work is anticipated to be completed by the end of July 2023.
5	31 23 23	Revise paragraph 4.01.B of Specification Section 31 23 23 as follows: B. Existing fill material at Well 16 is regulated and will be

Item	Location	Description of Change
		removed by others. Work is anticipated to be completed by the end of July 2023.
6	33 05 01	Revise paragraphs 2.06.B.1 b and c of Specification Section 33 05 01 as follows: a. 275 psi to 450 psi for 24-inch Diameter and Under: Use ASME B16.5, Class 300, Series A, *raised* face *or AWWA C207 Class E flanges. Flanges for valves, meters, and couplings shall match adjacent steel flanges.* b. 275 psi to 450 psi for 26-inch to 60-inch Diameter: Use ASME B16.47, Class 300, Series A, raised face, *or AWWA C207 Class E flanges. Flanges for valves, meters, and couplings shall match adjacent steel flanges.*
7	33 12 00	Revise paragraph 2.08.A and B of Specification Section 33 12 00 to read as follows: A. Rated at 250 psi working pressure with 150# ANSI flanges. Valve shall be silent globe style check valves with ductile iron body, stainless steel trim and resilient seating. Valves shall be NSF 61 certified for drinking water. B. Manufacturer and Product: 1. APCO, Globe Style, Series 600. 2. "Or-Equal."
8	G-6	Replace Drawing G-6 with attached revised G-6.
9	C-1	Replace Drawing C-1 with attached revised C-1.
10	C-2	Replace Drawing C-2 with attached revised C-2.
11	C-3	Replace Drawing C-3 with attached revised C-3.
12	C-4	Replace Drawing C-4 with attached revised C-4.
13	C-5	Replace Drawing C-5 with attached revised C-5.
14	C-6	Replace Drawing C-6 with attached revised C-6.
15	C-7	Replace Drawing C-7 with attached revised C-7.
16	C-8	Replace Drawing C-8 with attached revised C-8.
17	C-9	Replace Drawing C-9 with attached revised C-9.
18	C-10	Replace Drawing C-10 with attached revised C-10.
19	C-12	Replace Drawing C-12 with attached revised C-12.
20	C-13	Replace Drawing C-13 with attached revised C-13.
21	C-14	Replace Drawing C-14 with attached revised C-14.
22	C-15	Replace Drawing C-15 with attached revised C-15.
23	C-18	Replace Drawing C-18 with attached revised C-18.
24	C-20	Replace Drawing C-20 with attached revised C-20.
25	C-21	Replace Drawing C-21 with attached revised C-21.
26	C-22	Replace Drawing C-22 with attached revised C-22.
27	C-24	Replace Drawing C-24 with attached revised C-24.
28	C-25	Replace Drawing C-25 with attached revised C-25.
29	C-26	Replace Drawing C-26 with attached revised C-26.
30	C-27	Replace Drawing C-27 with attached revised C-27.

Item	Location	Description of Change
31	PP-1 thru PP-4	Replace Drawings PP-1 thru PP-4 with attached revised PP-1 thru PP-4.
32	CF-3	Replace Drawing CF-3 with attached revised CF-3.
33	CP-1	Replace Drawing CP-1 with attached revised CP-1.
34	S-3, S-8 and S-13	Revise Detail Note 1 on Drawings S-3, S-8 and S-13 as follows: 1. Concrete floor slab at door thresholds only shall extend to outside edge of building. Hold foundation wall down to account for 6" slab over top.
35	ST-5	Replace Drawing ST-5 with attached revised ST-5.
36	E1.2	Replace Drawing E1.2 with attached revised E1.2.
37	E2.1	Replace Drawing E2.1 with attached revised E2.1.
38	E5.2	Replace Drawing E5.2 with attached revised E5.2.
39	E5.4	Replace Drawing E5.4 with attached revised E5.4.
40	E6.2	Replace Drawing E6.2 with attached revised E6.2.
41	E6.3	Replace Drawing E6.3 with attached revised E6.3.
42	E6.4	Replace Drawing E6.4 with attached revised E6.4.
43	E6.7	Replace Drawing E6.7 with attached revised E6.7.
44	E6.8	Replace Drawing E6.8 with attached revised E6.8.
45	E7.3	Replace Drawing E7.3 with attached revised E7.3.
46	E7.4	Replace Drawing E7.4 with attached revised E7.4.
47	E7.7	Replace Drawing E7.7 with attached revised E7.7.
48	E8.2	Replace Drawing E8.2 with attached revised E8.2.
49	E8.4	Replace Drawing E8.4 with attached revised E8.4.
50	E8.7	Replace Drawing E8.7 with attached revised E8.7.
51	E8.8	Replace Drawing E8.8 with attached revised E8.8.

This Addendum shall be incorporated into and made part of the Bidding Documents.

- END OF DOCUMENT –

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SECTION 00 41 13
BID FORM

This bid form will be replicated on the QuestCDN website and is provided here for information only. Bidder will complete Bid Form on the QuestCDN website and submit as their Bid.

1. BID RECIPIENT

1.1. To: Central Utah Water Conservancy District

1.2. Date: June 15, 2023 before 2:00 p.m.

1.3. Project: CWP HIGH HEAD WELL PUMP HOUSE PROJECT – WELLS #7, #16, AND #17

2. CONTRACT EXECUTION AND BONDS

2.1. Undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Owner in the form included in the Contract Documents to perform the Work as specified or indicated in said Contract Documents.

2.2. Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in Section 00 21 13, Instructions to Bidders, dealing with the disposition of the Bid Security.

2.3. This Bid will remain open for the period stated in Section 00 11 13, Advertisement for Bids, unless otherwise required by law. Bidder will enter into an Agreement within the time and in the manner required in Section 00 21 13, Instructions to Bidders, and will furnish the insurance certificates, Payment Bond, and Performance Bond required by the Contract Documents.

3. CONTRACT TIMES, COMPLETION MILESTONES, AND LIQUIDATED DAMAGES

3.1. To all the foregoing, and including all Bid Forms contained in this Bid, Bidder further agrees to complete the Work required under the Contract Documents within the Contract Times and the Work milestones stipulated in the Contract Documents, and to accept in full payment therefore the Contract Price based on the Lump Sum Bid Price(s) named in this Bid.

3.2. Work completion dates and liquidated damages for exceeding these dates are listed in the supplements to this Bid Form.

4. BIDDER'S REPRESENTATION

4.1. In submitting this Bid, Bidder represents that:

4.1.1. Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality where the Work is to be performed, the legal requirements (federal, state, and local laws, ordinances rules, and regulations), and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as Bidder deems necessary.

4.1.2. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the Addenda, receipt of which is hereby acknowledged. Failure to acknowledge addenda shall render the bid nonresponsive and shall be cause for its rejection.

4.1.3. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

4.1.4. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, and performance of the Work.

4.1.5. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

4.1.6. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) Bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

4.1.7. Bidder is aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

4.1.8. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, and data with the Bidding Documents.

4.1.9. Bidder has provided written notice to the Owner of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by the Owner is acceptable to Bidder.

4.1.10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4.1.11. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

4.1.12. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation.

4.1.13. Bidder has not directly or indirectly included or solicited any other Bidder to submit a false or sham Bid.

4.1.14. Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought collusion to obtain for itself any advantage over any other Bidder or over the Owner.

4.1.15. Bidder understands and agrees that the Owner reserves the right to reject any and all bids and to waive any informalities in the bidding.

4.1.16. Bidder agrees that this Bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

4.1.17. Bidder is responsible for the quantity takeoffs from which the bid is based from the information in the Contract Documents.

4.1.18. Bidder has examined the Agreement Form attached hereto, and the Specifications, and proposes and agrees that if his bid as submitted, and as more fully described in the attached sheets, be accepted, the Bidder will contract in the form so attached to furnish the items and perform work called for in accordance with the provisions of said Agreement Form and the Specifications and to deliver the same within the time stipulated therein.

4.1.19. Bidder will accept in full payment, therefore, the prices named in this Bid.

5. SALES AND USE TAX

5.1. The Bidder agrees to pay all Federal, State, and local sales and use taxes for the Work contemplated herein.

6. SUBCONTRACTOR WORK

6.1. The Bidder shall perform at least 40 percent of the total project Work with the Bidder's own forces. Failure to comply with this requirement will render the Bid nonresponsive and may cause its rejection.

6.2. The Bidder shall list as part of the Bid the name and the location of the place of business of each Subcontractor who will perform Work or labor or render service to the Bidder in or about the construction of the Work or improvement, in an amount in excess of 2 percent of the Prime Contractor's total Bid. A sample table of Subcontractors is shown below. The Bidder shall also list the portion of the Work which will be done by each Subcontractor under this Contract. The Bidder shall list only one Subcontractor for each portion as is defined by the Bidder in its Bid. Failure to comply with this requirement will render the Bid nonresponsive and may cause its rejection. The Bidder shall also list the name and location of the place of business of each supplier to be used to complete the work. A sample table of suppliers is shown below. Use of the listed supplier will be contingent on an approved submittal. Rejected equipment or supplies can be provided by an alternate vendor assuming an approved submittal is produced. Failure to comply with this requirement may render the Bid nonresponsive and may cause its rejection.

7. BASIS OF LUMP SUM BID

7.1. Award of the Contract will be based upon the total bid price for the Contract. The Bid Schedule consists of lump sum bid amounts. The Total Lump Sum Bid Price is the sum of these figures plus any increased amount the Contractor determines necessary to complete the entire project based on the Work shown in the Contract Documents that may not be included as an individual bid item in the Schedule of Values Bid Items.

7.2. Bid Schedule A includes the prices which will be incorporated into the Agreement by reference for Well # 7, Well #16, and Well #17. Bidders must bid on all schedules included in the Bid Form. The determination of the low bidder will be based on total of Bid Schedule A.

8. PROPOSAL ADJUSTMENT

8.1. The proposed adjustment allows the Bidder to adjust their bid prior to bid opening without the need to adjust individual schedule of values bid item amounts. The sum of the extended total shall be increased (or decreased) by this

Proposal Adjustment amount. Indicate increase or decrease in parenthesis (_____). For payment purposes, this correction amount will be applied proportionally to all items in the Bid Schedule.

9. WITNESS

In compliance with Section 00 21 13, Instruction to Bidders, and all conditions of the Contract Documents,

the undersigned _____

a corporation organized under the laws of the State of _____

a partnership consisting of _____

or an individual trading as _____

of the City of _____, hereby proposes and agrees to furnish any and all materials, labor, construction equipment, services, transportation and other items as required for performing all the work for the construction described in the Contract Documents and to construct the same and install the material therein for the Owner in a good and workmanlike and substantial manner acceptable to the Owner and strictly pursuant to and in conformity with the Specifications and Drawings prepared by the Engineer, and with such modifications of the same and other documents that may be made by the Owner as provided herein.

The undersigned hereby declares, as Bidder, that the only persons or parties interested in this Bid as principals are those named herein; that no elected official or employee of the Owner is in any manner interested directly or indirectly in this Bid or in the profits to be derived from the Contract proposed to be taken, other than as permitted by law; that this Bid is made without any connection with any other person or persons making a separate Bid for the same purpose; that the Bid is in all respects fair and without collusion or fraud.

By signing this Bid, the Bidder certifies that neither the Bidder nor any of its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in any program or project which is 100 percent or partially funded with federal funds.

Respectfully submitted,

_____

_____
Bidder

(Corporate Seal)
If Bid is by corporation

By _____

_____
Title

_____
Witness: if Bidder is an individual

Bidder's post office address:
_____

Names and address of all members of the firm or names and titles of all officers of the corporation. _____

Name and Title	**Address**
_____	_____
_____	_____
_____	_____
Phone:	_____

SEAL

10. SUPPLEMENTS

10.1. The supplements listed below, following "End of Section," are part of the Specification.

1. Project Milestones and Liquidated Damages.
2. Bid Schedule A – Basis of Award (to be completed by Bidder).
3. Addenda to the Bidding Documents (to be completed and acknowledged by Bidder).
4. List of Subcontractors (to be completed by Bidder).
5. List of Suppliers (to be completed by Bidder).

END OF SECTION

SUPPLEMENT NO. 1

BIDDERS have indicated that certain electrical equipment may have very long order times. For example, transformer 12.47kV to 480 Volt up to 2.5 years. From a supplier contacted by ENGINEER, 15 kV switchgear is currently 36 to 40 weeks, and the VFD would be out 44 to 54 weeks. The generator and automatic transfer switch for Well 16 could also be longer lead items. The schedule for Well 16 is critical to OWNER. OWNER has recently completed construction on Wells 8, 9 and 10. Due to water quality issues these wells have not been placed into service, pending construction of a water polishing plant. Existing electrical equipment on these three wells is compatible for Well 16. If long lead electrical items such as the transformer are not available for timely completion of Well 16 in accordance with the schedule below, electrical equipment from Existing Well 10 may be moved to Well 16 by CONTRACTOR. New equipment shall still be ordered and installed on Well 10 to replace equipment moved to Well 16. Project Milestone dates for Wells 7 and 17 have been moved to March through May of 2026 to accommodate these long lead electrical items.

Project Milestones and Liquidated Damages			
Item No.	**Description**	**Project Milestone Date**	**Liquidated Damages for Failure to Achieve Project Milestone $/calendar day**
1	Intermediate milestone #1: Installation of all structures, mechanical piping, valves, equipment, electrical, HVAC, instrumentation and appurtenant work necessary to begin loop testing, start up and commissioning of Well 16. Based on input from Contractors and long lead times for some electrical equipment, in order to meet this schedule CONTRACTOR may pull required electrical equipment from existing CUWCD Well 10 that has the same electrical requirements as Well 16. This might include primarily the transformer; but if required to meet schedule other electrical equipment as well. The generator and automatic transfer switch, if not available by this date shall be installed asap after this date (specified liquidated damages for the generator and ATS shall not apply).	March 1, 2025	$1,000

Project Milestones and Liquidated Damages			
Item No.	**Description**	**Project Milestone Date**	**Liquidated Damages for Failure to Achieve Project Milestone $/calendar day**
2	Substantial Completion Well 16	March 31, 2025	$5,000
3	Final Completion and Readiness for Final Payment Well 16	May 16, 2025	$1,000
4	Intermediate milestone #2: Installation of all structures, mechanical piping, valves, equipment, electrical and electrical equipment available by this date, HVAC, and instrumentation at Wells 7 and 17.	July 1, 2025	$1,000
5	Intermediate milestone # 3: Install the remainder of electrical equipment that are long lead items not available to meet Intermediate Milestone #2, and appurtenant work necessary to begin loop testing, start up and commissioning of Wells 7 and 17	March 1, 2026	$1,000
6	Substantial Completion Wells 7 and 17	March 31, 2026	$5,000
7	Final Completion and Readiness for Final Payment Wells 7 and 17	May 16, 2026	$1,000

SUPPLEMENT NO. 2
BID SCHEDULE A
Basis for Award

Total Bid Schedule A Lump Sum Bid Amount, Including Schedule of Values 1, 2, and 3=	$
Proposal Adjustment =	$
Total Adjusted Bid Schedule A	$

Bidder agrees to accept as full payment for work proposed with the Bidding Documents based upon the undersigned's own estimate of quantities and cost including sales, consumer, use, other taxes, and overhead and profit, the following amount for Bid Schedule A for the Contract:

Written Value: _____ Dollars and

_____ Cents

Numerical Value: $ _____

A. **SCHEDULE OF VALUES 1 - WELL PUMP HOUSE #7 AND SITE IMPROVEMENTS**

Based upon Bidder's own estimate of quantities and costs, the Bidder provides costs for the following items in Bidder's Schedule of Values for Well # 7.

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
1	Mobilization/Demobilization	1	L.S.		$
2	Construction Surveying and Control Services	1	L.S.		$
3	Quality Control Testing Agency Services	1	L.S.		$
4	Development and Implementation of the Storm Water Pollution Prevention Plan	1	L.S.		$
5	Surge Tank with Valve Vault, Piping & Equipment Complete	1	L.S.		$
6	Pump House Structure Complete	1	L.S.		$

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
7	Furnish and Install 1,250 HP Pump, Motor & Discharge Head, and Pump Base Modifications	1	L.S.		$
8	Pump House Piping Complete (All Piping to 2-foot Outside of Building)	1	L.S.		$
9	Pump Station Electrical System Complete	1	L.S.		$
10	SCADA Systems Complete by APCO Inc	1	L.S.		$
11	Security Systems Complete by Mountain West Security Systems, LLC	1	L.S.		$
12	Pump Station HVAC System Complete	1	L.S.		$
13	Other instrumentation, including conductivity, pH, and turbidity	1	L.S.		$
14	Remove existing fill to required grade (approx. 2,590 cy) and subgrade preparation	1	L.S.		$
15	Fill placement to required grade (approximately 1,816 cy)	1	L.S.		$
16	Site work including finish site grading, base course, remove and replace existing asphalt, asphalt driveway, concrete flatwork, curb and gutter, etc. complete	1	L.S.		$
17	Yard piping, including 20” CML&W steel pipe, 12” CML&W steel pipe, and 12” HDPE pipe and 14” steel discharge into area inlet.	1	L.S.		$
18	Yard drainage piping, including 18”: and 12” RCP, area inlet, cleanout box, manhole, and catch basin.	1	L.S.		$

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
19	Furnish and install sump vault and piping complete	1	L.S.		$
20	Cathodic protection complete	1	L.S.		$
21	Relocate 36’ double swing chain link gate & replace chain link fence in area of gate removal	1	L.S.		$
22	Furnish and install chain link fence gates complete	1	L.S.		$
23	Landscaping complete	1	L.S.		$
24	Irrigation System complete	1	L.S.		$
25	Remove existing 40’ long I-Beam camera pole and salvage to Owner at the end of the project.	1	L.S.		$
26	Complete all appurtenant work for a fully functional system, including but not limited to permits, clean-up, commissioning, etc.	1	L.S.		$
TOTAL OF SCHEDULE OF VALUES 1 FOR WELL 7					**$**

B. **SCHEDULE OF VALUES 2 - WELL PUMP HOUSE #16 AND SITE IMPROVEMENTS**

Based upon Bidder’s own estimate of quantities and costs, the Bidder provides costs for the following items in Bidder’s Schedule of Values for Well # 16.

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
1	Mobilization/Demobilization	1	L.S.		$
2	Construction Surveying and Control Services	1	L.S.		$
3	Quality Control Testing Agency Services	1	L.S.		$

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
4	Development and Implementation of the Storm Water Pollution Prevention Plan	1	L.S.		$
5	Surge Tank with Valve Vault, Piping & Equipment Complete	1	L.S.		$
6	Pump House Structure Complete	1	L.S.		$
7	Furnish and Install 1,250 HP Pump, Motor & Discharge Head, and Pump Base Modifications	1	L.S.		$
8	Pump House Piping Complete (All Piping to 2-foot Outside of Building)	1	L.S.		$
9	Furnish and install 1500 KW generator with 4000-gallon storage tank and accompanying piping, and appurtenances, complete	1	L.S.		$
10	Pump Station Electrical System Complete (except electrical equipment relocated from existing Well 10).	1	L.S.		$
11	Remove from Well 10, Transport, Install on Well 16, Test and Start-up Existing Electrical Equipment Required to Meet Completion Schedule for Well 16.	1	L.S.		$
12	Provide, Install, Test and Start-up New Electrical Equipment on Existing Well 10 to Replace Electrical Equipment removed from Well 10 for use on Well 16.	1	L.S.		$
13	Furnish and Install 6” Diameter Electrical Conduit between Existing Well 12 and Well 16, with pull boxes.	1	L.S.		$
14	SCADA Systems Complete by APCO Inc	1	L.S.		$

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
15	Security Systems Complete by Mountain West Security Systems, LLC	1	L.S.		$
16	Pump Station HVAC System Complete	1	L.S.		$
17	Other instrumentation, including conductivity, pH, chlorine and turbidity	1	L.S.		$
18	Chlorine chemical feed & instrumentation systems complete	1	L.S.		$
19	Subgrade preparation, and fill placement (approx. 2,686 cy)	1	L.S.		$
20	Site work including finish site grading, base course, asphalt driveway, concrete flatwork, curb and gutter, etc. complete	1	L.S.		$
21	Yard piping, including 20” CML&W steel pipe, 12” CML&W steel pipe, 12” HDPE pipe and 14” steel discharge into area inlet, 4” HDPE pipe (including connection to 20” steel pipe), and connection to 48” steel pipe.	1	L.S.		$
22	Yard drainage piping, including 15”: and 18” RCP, area inlet, manhole, and catch basin.	1	L.S.		$
23	Furnish and install sump vault and piping complete, including 4” PVC pipe to manhole.	1	L.S.		$
24	Cathodic protection complete	1	L.S.		$
25	New pump-to-waste 7’ x 7’ precast valve vault, including box, hatches, and all piping and valves in box at Well 16.	1	L.S.		$

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
26	New pump-to-waste pipeline, including 12" steel pipe, 20" HDPE pipe and connections and fittings.	1	L.S.		$
27	New pump-to-waste 7' x 8' precast valve vault, including box, hatches, and all piping and valves in box at Well 12.	1	L.S.		$
28	New 7 ft high PVC coated chain link fence and gate, with mow curb.	1	L.S.		$
29	Landscaping complete	1	L.S.		$
30	Irrigation System complete	1	L.S.		$
31	Complete all appurtenant work for a fully functional system, including but not limited to permits, clean-up, commissioning, etc.	1	L.S.		$
TOTAL OF SCHEDULE OF VALUES 2 FOR WELL 16					**$**

C. **SCHEDULE OF VALUES 3 - WELL PUMP HOUSE #17 AND SITE IMPROVEMENTS**

Based upon Bidder's own estimate of quantities and costs, the Bidder provides costs for the following items in Bidder's Schedule of Values for Well # 17.

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
1	Mobilization/Demobilization	1	L.S.		$
2	Construction Surveying and Control Services	1	L.S.		$
3	Quality Control Testing Agency Services	1	L.S.		$

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
4	Development and Implementation of the Storm Water Pollution Prevention Plan	1	L.S.		$
5	Surge Tank with Valve Vault, Piping & Equipment Complete	1	L.S.		$
6	Pump House Structure Complete	1	L.S.		$
7	Furnish and Install 1,250 HP Pump, Motor & Discharge Head, and Pump Base Modifications	1	L.S.		$
8	Pump House Piping Complete (All Piping to 2-foot Outside of Building)	1	L.S.		$
9	Pump Station Electrical System Complete	1	L.S.		$
10	SCADA Systems Complete by APCO Inc	1	L.S.		$
11	Security Systems Complete by Mountain West Security Systems, LLC	1	L.S.		$
12	Pump Station HVAC System Complete	1	L.S.		$
13	Other instrumentation, including conductivity, pH, and turbidity	1	L.S.		$
14	Remove existing fill to required grade (approx. 1,219 cy) and subgrade preparation	1	L.S.		$
15	Fill placement to required grade (approximately 871 cy)				
16	Site work including finish site grading, base course, asphalt driveway, concrete flatwork, curb and gutter, etc. complete	1	L.S.		$

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL AMOUNT
17	Yard piping, including 20" CML&W steel pipe, 12" CML&W steel pipe, and 12" HDPE pipe and 14" steel discharge into pump-to- waste box on north side of building.	1	L.S.		$
18	Yard drainage piping, including 24": RCP, connection to manhole by others, and catch basin.	1	L.S.		$
19	Furnish and install sump vault and piping complete	1	L.S.		$
20	Cathodic protection complete	1	L.S.		$
21	Furnish and install 8' precast concrete fence with 2' wide mow strip.	1	L.S.		$
22	Furnish and install ornamental iron gates complete	1	L.S.		$
23	Landscaping complete	1	L.S.		$
24	Irrigation System complete	1	L.S.		$
25	Remove existing 40' long I-Beam camera pole and salvage to Owner at the end of the project.	1	L.S.		$
26	Complete all appurtenant work for a fully functional system, including but not limited to permits, clean-up, commissioning, etc.	1	L.S.		$
TOTAL OF SCHEDULE OF VALUES 3 FOR WELL 17					**$**

SUPPLEMENT NO. 3

Addenda to the Bidding Documents		
Addendum No.	**Addendum Date**	**Bidder Acknowledgment**

SUPPLEMENT NO. 4

List of Subcontractors			
Work to be Performed	**Subcontractor License Number**	**Percent of Total Bid**	**Subcontractor's Name and Address**
SCADA Integrator			APCO Inc. 710 S. Redwood Road, North Salt Lake, UT 84054
Access Control/Door Security			Mountain West Security Systems, LLC, 764 North 400 West, Orem, UT 84057
Electrical			
Masonry			
HVAC			
Roofing			
Asphalt			
Irrigation and Landscape			

SUPPLEMENT NO. 5

List of Suppliers		
Material to be Supplied	**Percent of Total Bid**	**Supplier's Name and Address**
Pump and Motor		
Butterfly Valves		
Pump Control Valves		
Check Valves		
Chlorine Equipment		
VFD		
Welded Steel Pipe		
Surge Tank		
Generator		

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SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The completed Work will provide Owner with three (3) drinking water well pump houses for Wells #7, #16 and #17, each consisting of a masonry pump house with asphalt shingle roof, a 1,250 HP vertical turbine pump and motor, piping, valves, chlorination equipment (Well 16 only), HVAC, electrical, SCADA, security system, a surge tank and vault, paving, site work, landscaping, fencing, and other associated items and appurtenant work.

B. The Work is divided into three schedules of values, one for each well site as described in Section 00 41 13, Bid Form.

C. Alternates: Only those alternates that were selected by the Owner, as evidenced in the Agreement, are made a part of this Contract.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

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SECTION 22 11 24
PUMP AND PUMP MOTOR

PART 1 GENERAL

1.01 REFERENCES

A. Work covered by this specification shall meet or exceed the provisions of the latest editions of the following Codes and Standards in effect at the time of award of the Contract:

1. American National Standards Institute (ANSI):
   a. B16.1, Cast Iron Pipe Flanges and Flanged Fittings Class 25, 125, 250 and 800.
   b. HI 9.6.4, Rotodynamic Pumps for Vibration Measurements and Allowable Values.
2. ASTM International (ASTM):
   a. A36, Structural Steel.
   b. A48, Gray Iron Castings.
   c. A53, Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
   d. A108, Steel Bars, Carbon, Cold Finished, Standard Quality.
   e. A269, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
   f. A536, Standard Specification for Ductile Iron Castings.
   g. A582, Standard Specification for Free-Machining Stainless Steel Bars.
   h. B584, Standard Specification for Copper Alloy Sand Castings for General Applications.
3. American Water Works Association (AWWA):
   a. C651, Standard for Disinfecting Water Mains.
   b. C654, Standard for Disinfecting of Wells.
   c. E103, Standard Specifications for Horizontal and Vertical Turbine Line- Shaft Pumps.
4. National Sanitation Foundation (NSF):
   a. NSF/ANSI 60, Drinking Water Treatment Chemicals.
   b. NSF/ANSI 61, Drinking Water System Components – Health Components.
   c. NSF/ANSI 372, Drinking Water System Components – Lead Content.

1.02 SUBMITTALS

A. Contractor shall submit for review to Construction Manager, sufficient literature, detailed specifications, and drawings to show dimensions, make, style, speed, size, type, horsepower, head-capacity, efficiency, materials used, design features, internal construction, weights, and any

other information required by Construction Manager for review of all pumping equipment. No pumping equipment will be accepted, and installation will not be allowed, until such review has been completed. All submittals shall clearly state any deviations from the specified requirements. The following shall also be furnished with the submittal:

1. Performance data curves showing head, capacity, horsepower demand, and pump efficiency over the entire operating range of the pump, from shutoff to maximum capacity. Equipment manufactured shall indicate separately the head, capacity, horsepower demand, overall efficiency, and minimum submergence required at specified design point.
2. Equipment manufactured shall provide complete and detailed information regarding the installation of pumps. Any installation requirements or operating conditions which supplier or manufacturer' feel to be critical to the safe and reliable operation of the pumps should be identified and described in detail.
3. Shop Drawings submitted for review also shall include detailed description of motor, including electrical diagrams, schematic control diagrams, and a detailed description of how the control system is to function, where applicable.

1.03 OPERATING CONDITIONS

A. Table 1 indicates the operating conditions of the pumps.

Table 1
Operating Conditions Deep Well Turbine Pumps

Description	Well #7	Well #16	Well #17
Design capacity of pump (gpm)	6000	6000	6000
Design total dynamic head at discharge bowl assembly (feet)	576	576	576
Pump Setting Depth (feet)	270	290	291
Nominal Operating Speed (rpm)	1770	1770	1770
Minimum Efficiency at Design Point	83.0%	83.0%	83.0%
Maximum NPSHR at Design Point	30 feet	30 feet	30 feet
Minimum Motor Horsepower	1,250	1,250	1,250
Column Size (diameter)	16-inch	16-inch	16-inch

Table 1 Operating Conditions Deep Well Turbine Pumps			
Description	**Well #7**	**Well #16**	**Well #17**
Minimum Shaft Size (inches)	2-11/16 (SS 416)	2-11/16 (SS 416)	2-11/16 (SS 416)
Diameter of Well Casing	24-inch (23.25" I.D.)	24-inch (23.25" I.D.)	24-inch (23.25" I.D.)
Maximum Bowl Diameter	19-1/4 in.	19-1/4 in.	19-1/4 in.
Approx. Elevation (ft. above MSL)	4539	4558	4560
Model No.: Floway National	19FKM K20MC	19FKM K20MC	19FKM K20MC
Utility Power (volts, phase, hertz)	4160,3,60	4160,3,60	4160,3,60

1.04 MECHANICAL DEFECTS AND REJECTIONS

A. Contractor furnished pumps that have mechanical defects or do not meet the requirements for head-capacity, horsepower, efficiency, and vibration requirements will be rejected, and shall be replaced without additional cost to Owner for furnishing, removal, reinstallation, and retesting. Mechanical defects shall include excessive vibration, improper balancing of any rotating parts, improper tolerances, binding, excessive bearing or motor heating, defective materials, including materials that do not conform to the Specifications, improper fitting of parts, and any other defect which will in time damage pump or unreasonably impair its efficiency or operation.

1.05 WARRANTY

A. Contractor furnished equipment covered by these specifications shall be warranted against defective parts due to faulty material or workmanship for 1 year after date of start-up. Contractor shall guarantee to replace any defective parts within the period of time specified at no additional cost to Owner. If Contractor must pull pump to replace defective parts, Contractor shall guarantee to pull and replace pump at no additional cost to Owner.

1.06 FACTORY TESTING

A. Equipment shall be factory tested and inspected as specified hereinafter. All costs for the tests shall be borne by Contractor. Contractor shall submit the complete shop test procedures to Construction Manager for approval at least 30 days prior to the shop test. In the event any equipment fails to meet the performance values set forth in this

specification, the equipment shall be modified and retested or replaced with equipment that performs in accordance with this specification.

1. Impeller, motor rating and electrical connections shall be checked for compliance to the customer's purchase order.
2. Pump and motor shall be performance tested as specified hereinafter. Three copies of certified test reports, including actual test records, shall be submitted, and approved by Construction Manager prior to shipment of the equipment.

B. Any deficiencies identified shall be corrected and appropriate testing redone. A certified test report on the results of the factory testing shall be supplied with each pump at the time of shipment.

C. Factory test of the pumping equipment shall be made in accordance with the Test Code of Hydraulic Institute 14.6-2011 Test Acceptance Grade 1B. Each pump shall be tested for performance at the factory to determine the head vs. capacity, motor total electrical power draw (kVA), and motor active electrical power draw (kW) for the full speed at which the pumps are specified and shown on a performance test curve, certified by a registered professional engineer, as continuous functions throughout the pump's performance range. Tests of models, prototypes or similar units will not be acceptable. All tests shall be run in accordance with the test code for centrifugal pumps of the Standards of Hydraulic Institute, latest edition.

D. Test curves for each pump shall have the capacity plotted as abscissas, and the operating head, brake horsepower, and efficiency plotted as ordinates. Test curves shall cover the full range of operation from shut-off to maximum capacity. Characteristics of the pumps shall conform with this specification.

E. All pumping equipment which fails to meet the requirements of the Test Code shall be removed and shall be replaced with pumping equipment which meets the specifications requirements. Three notarized copies of certified factory performance test curves for each pump shall be furnished and approved before shipment of the pumps to the Site.

F. Pumps shall have design and operational characteristics which provide for maximum efficiency and minimum hydraulic turbulence in the pump casing at the design capacity of the pump and design total dynamic head specified in Table 1, Operating Conditions Deep Well Turbine Pump. Each pump shall operate without excessive noise, vibration, heating, cavitation, or damage to the pump. Actual certified pump capacities shall at a minimum meet the design conditions specified in Table 1.

PART 2 PRODUCTS

2.01 DEEP WELL VERTICAL TURBINE PUMP

A. Pumps shall be of deep well, product lubricated, vertical turbine type suitable for pumping culinary water. Material, manufacturing, and performance standards shall be in compliance with AWWA E103, NSF 60, NSF 61 and NSF 372, as applicable.

B. Performance Requirements

1. Pump Speed: Pumps shall operate as specified in Table 1.
2. Pump Characteristics: Pump shall be characterized by head capacity curves of steadily decreasing head with increasing capacity. Maximum head shall be at zero flow. Pump shall have a minimum efficiency as provided in Table 1 during operation against the system head. Pump head capacity curves shall indicate that these losses have been included. Pumps shall have head-capacity curves similar to that of the specified pump. Pumps having curves that show a flatter or near horizontal slope over a section in the head; capacity curve will not be accepted. Curves with head-capacity curves with slopes of the curve flatter than that shown for the specified pump will not be accepted.
3. Pump and motor shall be capable of producing the flow rate and total dynamic heads indicated in Table 1.
4. Motor Characteristics: Under no operating conditions shall the required pump brake horsepower exceed the nameplate rating of the motor being furnished.
5. Pump shall be designed to operate throughout its entire range without excessive vibration or noise. Pump shall meet the requirements of the Hydraulic Institute (2016) Paragraph 9.6.4 vibration limits.

C. Vertical Turbine Pump Components:

1. Pumps:
   a. Vertical turbine pump for wells shall be as manufactured by Floway Pumps, National Pump Company “or-equal” and shall be a multi-stage product lube bowl assembly (“or-equal”).
   b. Unless otherwise stated herein, the pump shall in all respects conform to the American National Standard ANSI/AWWA E103 for “Horizontal and Vertical Turbine Line Shaft Pumps” and shall comply with all local and state sanitary and safety regulations.
2. Discharge Head:
   a. Discharge head shall be fabricated steel (ASTM A53 Grade B Pipe and ASTM A36 Steel Plate), accurately machined and

with a surface discharge. Discharge flange shall be machined and drilled to ANSI standards for 150-pound rating and shall be sized to match the specified system. Top of the discharge head shall have a rabbet fit to accurately locate the vertical hollow shaft driver and have a diameter equal to the driver base diameter (BD) and not less than 24-1/2 inches. Lifting lugs of sufficient strength to support the weight of the complete unit shall be provided. Base shall be round or square. Head must be able to accept the monitoring tube, well vent, and other tubing as shown on the Drawings. Contractor shall modify the well base dimensions on the Drawings to match supplied head.

b. High-pressure bleed-off stuffing box shall be cast iron and rated for 250 psi discharge pressure and shall contain a minimum of five acrylic graphite packing rings and shall have a grease chamber. Packing gland shall be bronze secured in place with stainless steel studs and adjusting nuts. Stuffing box bearing shall be C-844 bronze. A rubber slinger shall be installed on the top shaft above the packing gland. Top shaft shall be Type 416 stainless steel and shall extend though the stuffing box.

c. Discharge head shall be equipped with a connection for a 1-inch prelube pipe and solenoid valve (120V ac), as shown on Drawings and provisions for chemical injection.

d. Top line shaft (head shaft) shall be of A582 Grade Type 416 stainless steel and shall not exceed 10 feet in length. Impeller adjustment shall be provided at the top of the head shaft by means of a bronze adjusting nut of ASTM B584 alloy C876/C90300 which shall be positively locked in position.

e. Lifting soleplate shall be supplied and installed, if required by the pump manufacturer.

f. Pump manufacturer shall include the method of adjusting the pump impellers at the top of the head shalt.

g. Contractor shall be responsible for ensuring that the discharge head is structurally and mechanically adequate for the provided and installed pump configuration.

3. Column Assembly:

a. Line shaft for well shall be of A582 Grade Type 416 stainless steel (118,000 psi min.) and shall be furnished in interchangeable sections not over 10 feet in length.

b. Butting faces shall be machined square to the axis of the shaft, with maximum permissible axial misalignment of the thread axis with the shaft axis 0.002 inch in 6 inches. Size of shaft shall be no less than that determined by ANSI/AWWA E103 Specifications, Section 4.4.2.2 - Line Shaft, for C1045 line shaft, adjusted for A582 Grade Type 416 stainless steel material, and shall be such that elongation due to hydraulic thrust will not

exceed the axial clearance of the impellers in the pump bowls. Maximum runout in 10 feet shall not exceed 0.005 inch.

c. Line shaft bearing shall be of 70 minimum shore hardness, neoprene, snap-in type, internally spiral grooved to flush out sand and other abrasives and mounted in CDA -836 Bronze bearing retainers held in position in the column coupling by means of the butted ends of the column pipe. Bearing spacing shall not exceed 10 feet.

d. Outer column piping shall be of ASTM A53 Grade B Standard Wall steel pipe in interchangeable sections not over 10 feet in length with the ends of each section faced parallel and machined with eight straight threads per inch permitting the ends to butt and ensuring alignment when connected by standard mill steel couplings. Weight of the column pipe shall be no less than that stated in ANSI E 103, Section E.3 Table E.1, "Diameters and Weights of Standard Discharge Column Pipe Sizes". Top and bottom sections of column pipe shall not exceed 5 feet in length. Contractor shall be responsible for ensuring the column piping is structurally and mechanically adequate for provided and installed pump configuration.

4. Pump Bowl Assembly:

a. Pump bowl castings shall be of close-grained cast iron ASTM A48 Class 30 or ASTM A536 ductile iron Class 60-40-18 where required to meet the hydrostatic pressure criteria listed below. Water passages shall be free of blowholes, sand holes, and other detrimental defects, shall be lined with porcelain enamel, and shall be accurately machined and fitted. Finished bowls shall be capable of withstanding a hydrostatic pressure equal to twice the head at rated capacity or equal to or greater than the shut-off head, whichever is greater.

b. Impellers shall be ASTM B584 alloy C87600 lead free bronze, enclosed type, and shall be statically balanced, and shall be fastened securely to the impeller shaft with Type 316 stainless steel collets. Impellers shall be adjustable vertically by an external means. Impeller skirt and series case throat area shall be thick enough to allow for machining and wearing at the time of repair. ~~Bowl wear rings and impeller wear rings shall be hardened 17-4 stainless steel with a Rockwell C-Scale Hardness number of 44.~~ *The bowl wear rings shall be hardened 17-4 stainless steel with a Rockwell C-Scale Hardness number of 40 and impeller wear rings shall be hardened 17-4 stainless steel with a Rockwell C-Scale Hardness number of 32.*

c. Pump shaft shall be of ~~A582 Grade Type 416~~ *ASTM A564 17-4* stainless steel turned, ground and polished. Bearings shall be Morse or Durmax Marine Bearings consisting of sleeve bearings with a Naval Brass outer shell super-bonded to a fluted rubber bearing surface (or approved equal) above and below each

impeller. Pump shaft shall have chromed journals at the bearing points. Size of the shaft shall be no less than that determined by ANSI/AWWA Specifications E103.

d. Discharge case shall be threaded on the outside for column sizes up to 14 inches and fitted with a cast iron ASTM A48 Class 30 column adaptor of the proper size to connect to the column selected. Likewise, the suction case shall also be threaded on the I.D. and fitted with a cast iron or steel suction adaptor.

5. Suction Pipe and Strainer:
   a. Suction pipe shall not be required.
   b. A ~~galvanized~~ *Type 316 stainless steel* cone strainer shall be provided having a net inlet area equal to at least four times the suction pipe area. Maximum opening size shall not be more than 75 percent of the minimum opening of the water passage through the bowl or impeller.

2.02 ANALYSIS

A. Tests may be conducted with shop motor to facilitate the manufacturing process.

B. Minimum speed curve shall be plotted on the performance curve, based on the affinity laws and the test data.

C. Gauges shall be calibrated annually per Hydraulic Institutes and certified calibration data shall be provided. Flow meters and other test instruments shall be calibrated as required by ANSI/HI standards.

D. To ensure that neither harmful nor damaging vibrations occur to the pump structure at any speed within the specified operating range, the following analysis shall be required:

1. Pump manufacturer shall perform a structural frequency analysis of the above ground structural components utilizing a FEA method to ensure that no structural natural frequencies are excited to a degree that would cause measured vibration amplitudes at the top of the discharge head to exceed the requirements of ANSI/HI 9.6.4-2009. When deemed necessary by the experience of the manufacturer, the below ground structural components shall also be included in the analysis.
2. FEA method should include the use of ProE/Mechanica or an equivalent software. All pump assembly components, including the motor, shall be represented as solid elements, and if idealizations are used in place of solid elements, then a complete description of method for the idealization shall be included in the report. Analysis shall also include all modes of interest and pictorially represent

each mode shape. Modes of interest are defined as those structural frequencies that exist below 120 percent of the maximum operating speed. When significant modifications are required to lower the system's natural frequency, the pump structure's stresses and deflections shall also be reviewed. Analysis reports shall conclude acceptable operation at the analyzed operating speeds. design critical frequency shall be at least 20 percent above or below the operating range of the pump.

E. Manufacturer to provide documentation of the analysis ensuring that the specified requirements have been met, and that documentation should be signed and stamped by the professionally licensed engineer who performed the analysis work.

F. When measured in the direction of maximum amplitude on the pump and motor bearing housings, shall not exceed limits given in the latest ANSI/HI nomograph for the applicable pump type.

2.03 MOTOR

A. Pump motor shall be a vertical hollow shaft, premium efficiency, inverter duty, WP1 enclosure, electric motor, and shall be sized as noted in Table 1. Motor shall have a non-reverse ratchet, P-base, squirrel cage induction design. Motor shall have Class B or Class F insulation with temperature rise as specified by NEMA standards for class of insulation used and shall have a 1.15 service factor. Pump motor will be operating in an ambient temperature range of 50 degrees F to 110 degrees F.

B. Pump motors shall be provided with a vibration switch. Switch rating 120 Vac, 2 amps minimum.

C. Pump motors shall have over temperature protection, which shall consist of a minimum of six RTDs embedded in the motor windings and one RTD at each of the two bearings. Wiring to an external junction box shall be provided. RTDs shall be 100-ohm platinum three-wire elements.

D. Thrust bearing shall be chosen to handle the continuous down-thrust as specified by the pump manufacturer with an AFMBA L-10 bearing life of 12,320 hours and an L-50 of 61,600 hours. Provisions shall be made for momentary up-thrust equal to 30 percent of rated down-thrust.

E. Motor shall be suitable for across-the-line starting, soft start, be inverter duty, and shall be capable of reduced-voltage starting.

F. Motor rating shall be such that at design it will not be loaded beyond nameplate rating and at no place on the pump curve shall the loading exceed the service factor.

G. Motor temperature shall be rated no higher than the allowable operating temperature of the motor thrust and radial bearings and in no case shall it exceed the temperature rating of the insulation class used to wind the motor.

H. Junction box shall be oversized to accommodate wiring connection and shall be a standard box size for 4,160-volt motor with 1-inch to 4-inch conduit penetration on the bottom for Well Nos. 7, 16, and 17.

I. Motors connected to VFDs shall have factory installed shaft grounding rings. Supplier shall provide a warranty against VFD-induced bearing damage or failure for the life of the motor. Motor shall also include insulated bearings to prevent circulation and other bearing currents. *Grounding rings shall be stainless split-type. Ground rings shall be connected to the electrical ground system for the facility. Ground ring manufacturer shall be Aegis PRO or approved equal. The insulating bearing material shall be alumina oxide or ceramic. Insulated bearing manufacturer shall be SKF, NTN Corporation, GMN Bearing USA, or approved equal.*

J. If CCONTRACTOR supplies motors that are to be water cooled, CONTRACTOR shall provide all additional required piping, valves and controls at no additional cost to OWNER. CONTRACTOR shall submit drawings for approval for additional piping, valves and controls.

2.04 APPURTENANCES

A. Well Monitoring Tube:

1. Contractor shall furnish and install two 1-1/2-inch diameter well monitoring tubes in each well consisting of Schedule 80 PVC pipe. Tubes shall be furnished in sections not over 20 feet in length and shall be joined with flush threaded couplings.
2. PVC tube shall be joined and banded to the pump column with stainless steel bands at maximum of 10 feet. A minimum of two 1/4-inch diameter vent holes for every 10 feet of length shall be provided throughout the entire length of the monitoring tube. Depth of the monitoring tube shall be as indicated on the Drawings. Bottom end shall be capped.

B. Well Vent: Well vent shall consist of galvanized steel 1-inch diameter pipe through well surface plate extended up to 18 inches above the bottom plate of pump discharge head with a 180-degree bend made of two steel ells. Outlet end of vent pipe shall be covered with No. 14 stainless steel wire mesh securely fastened by a stainless-steel band. Lower end of vent pipe shall be threaded into well surface plate and provide water-tight seal.

C. Chemical Injection Tubes: Contractor shall furnish and install three 2-inch diameter well chemical injection tubes in the well consisting of HDPE DR 11 IPS, NSF 61 tubes, with Type 316 stainless steel (3/16-inch wall thickness) transition rectangular tubing around pump bowls as illustrated on the Drawings. The 2-inch diameter injection tubes shall extend to the depths indicated on the drawings. Tubes shall connect to a 4-inch Type 316 stainless steel Schedule 40 pipe attached on the bottom for a minimum of 40 feet (ends of tube shall be tapered). Tubes shall be connected to pump discharge head as shown on the Drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install pump and motor at the location shown on the Drawings and according with manufacturer's recommendations.

B. All pumps, complete with drive system, in place at Job Site, shall not exceed acceptable field vibration limits given in latest revisions of Hydraulic Institute Standards. Pumps shall be free of static unbalance; shall be free of dynamic unbalance up to the maximum speed of the pump and drive system; shall be free of torsional vibration from 10 percent below the minimum speed to 10 percent above the maximum speed of the pump and drive system; and shall be free of apparent unbalance caused by defective bearings, by close fittings parts which may rub on the rotating parts intermittently, or by loose discs or rotor parts, or unbalanced loads.

C. Motor/discharge head assembly shall be shimmed with respect to the well casing flange to bring the motor/discharge assembly into optimum alignment with any variations that the pump column and line shaft may exhibit from being truly plumb. Such shims must be structurally sound and securely attached. Water-tight seal between discharge head and well casing flange must be maintained.

3.02 FIELD TESTS

A. After installation, the pump shall be given an operating test to demonstrate freedom from mechanical defects, excessive noise, and vibration. Test shall include operating pump continuously while throttling discharge as needed. Operating test shall be performed for a minimum of one hour, or as directed by Construction Manager. Pumps with variable speed drives shall be tested at maximum speed, and at the average and minimum speeds listed under the specification for the pumps. Copy of actual test data shall be furnished to Construction Manager.

B. Tests for acceptable vibration shall be made, at no additional cost to Owner, in the field on each pump system, which in the opinion of

Construction Manager, seem to have excessive vibration. Field tests shall be running tests with pump pumping the product for which it is intended, and each pump system shall be tested separately with no other pumps running. Testing shall be done in the presence of Construction Manager. Amplitude as used in this Specification, shall mean total peak-to-peak displacement. Required test for acceptable vibration will be the measurement of this peak-to-peak displacement and will be performed with an IRD Vibration Meter, Model 306; Bently-Nevada TK-8; "Or-equal."

3.03 PROTECTIVE COATINGS AND LININGS

A. Coat the pump bowls in accordance with NSF Epoxy System 1 per Specification Section 09 90 00.

B. The Discharge Head shall be lined with NSF Epoxy System 1 and coated with Alkyd Enamel System 6 per Specification Section 09 90 00.

3.04 DISINFECTING

A. Source of Water: Contractor shall assume all responsibility to obtain necessary water supplies for disinfection of pumping system.

B. Testing Procedure:

1. Leakage and pressure testing must be completed, and all leaks repaired prior to disinfection procedures.
2. Pump and related piping installed under this Contract shall be disinfected using an approved disinfection method in accordance with the American Water Works Association Standard for Disinfecting Water Mains (AWWA C651) and American Water Works Association Standard for Disinfecting Wells (AWWA C654).
3. Heavily chlorinated water shall not be discharged onto the ground. Upon completion of disinfection, Sodium Bisulfate ($NaHSO_3$) shall be applied to the heavily chlorinated water to neutralize thoroughly the chlorine residual remaining. Water shall be neutralized to less than 1 ppm.
4. After completion of the disinfection, Contractor shall flush the new system until the chlorine residual is a maximum of 0.3 ppm after which bacteriological test will be performed by Owner.
5. At the end of 24 hours after the first sample is taken, a second bacteriological test will be performed by Owner to insure adequate disinfection. If initial or second disinfection fails to provide satisfactory bacteriological results, or shows presence of coliform, then well line and related piping shall be re-chlorinated, flushed, and retested until satisfactory results are obtained at expense to the Contractor.

END OF SECTION

SECTION 43 32 76
CHLORINATION EQUIPMENT

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Society of Mechanical Engineers (ASME): B16.3, Malleable Iron Threaded Fittings, Classes 150 and 300.
2. ASTM International (ASTM):
    a. A53, Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless B 88 Seamless Copper Water Tube.
    b. D1784, Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated PolyvinylChloride (CPVC) Compounds.
    c. D1785, Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120
    d. D1998, Standard Specifications for Upright Storage Tanks.
    e. D2466, Polyvinyl Chloride (PVC) Plastic Pipe and Fittings, Schedule 40.
    f. D2564, Solvent Cements for Polyvinyl Chloride (PVC) Plastic Pipe and Fittings.
    g. F411, Chlorinated Polyvinyl Chloride (CPVC) Plastic Pipe, Schedules 40 and 80.
3. American Water Works Association (AWWA):
    a. C800, Standard for Underground Service Line Valves and Fittings.
    b. C900, Standard for Polyvinyl Chloride (PVC) pressure Pipe and Fabricated Fittings, 4 In. (100mm) Through 12 In. (300 mm), for Waster Distribution.
    c. C901, Standard for Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service.
4. Chlorine Institute (CI):
    a. CI-01: The Chlorine Manual.
    b. CI Pamphlet 6: Piping Systems for Dry Chlorine.
5. International Association of Plumbing and Mechanical Officials (IAPMO).
6. International Mechanical Code (IMC).
7. International Plumbing Code (IPC).

1.02 SUBMITTALS

A. Contractor shall supply operation and maintenance manuals for all chlorination equipment.

1.03 WARRANTY

A. Manufacturer shall provide to Construction Manager written guarantee against defects in material or workmanship for a period of 1 year for all equipment utilized.

1.04 DELIVERY AND STORAGE

A. All equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variation, dirt and dust, or other contaminants.

1.05 EXTRA MATERIALS

A. Furnish for this set of pumps.

1. Complete set of bearings, O-rings, shaft sleeves, dowel pins and key, and mechanical seal.

PART 2 PRODUCTS

2.01 GAS CHLORINATOR SYSTEM

A. Equipment (piping, injector and ejector must be rated for a minimum of 350 psi working pressure):

1. Automatic Flow Proportioning Chlorine Gas Feed Panel with 10" gas rotometer and with integral chlorine gas vacuum gauge and SFC SC flow proportional control V10K, 200 ppd capacity.
2. Two 3" Rotometer Panels, to be mounted integrally on vacuum regulators: S10KC3C5M
3. Chlorine Ejector Enchlor 200 ppd 0.250 Nozzle / 0.358 Throat.
4. Chlorine loss of vacuum switch with isolation valve W3T99114.
5. Retractable Injector: 20-inch Steel Pipe SAF-T-FLO Chemical Injection Assembly, Series. EB-150 "Or-equal."
6. Four Cylinder Scales – Force Flow Equipment DR 150-4
7. Electronic Scale Indicator/Transmitter: Wizard 4000-4

B. Contractor shall install a vacuum operated solution feed and automatic flow proportioning, chlorination system. The system shall use 150 lb cylinders.

C. The system shall consist of the following: two sets of two 150 lb. chlorine cylinders, each on a pressure manifold, with an automatic switchover type vacuum regulator mounted on the manifolds. Each vacuum regulator shall be fitted with an indicating rotometer panel. The vacuum lines from each of the two vacuum regulators shall be joined at a Sch 80 PVC tee, from which a single vacuum line will convey the chlorine gas to the V10K flow

proportioning control panel. From the control panel chlorine gas will be conveyed to the chlorine ejector where the vacuum required to operate the system is created by pressure differential across a venture within the injector. A chlorine solution diffuser with check valve and corp stop shall be installed at the point of injection. All 150 lb. chlorine cylinders shall be mounted on separate scale platforms. Other equipment required:

1. Chlorine booster pump with all appurtenant valves, piping and injector, tubing, and vents along with the automatic flow proportioning valves.
2. Standard equipment furnished with the chlorinator including spare parts, lead gaskets, clamps, multi-purpose wrench and adapters shall be furnished by Contractor.

D. Chlorine required for testing and adjustment of the equipment shall be provided by OWNER.

E. The equipment and piping layout indicated on the Plans shall be taken in a sense as diagrammatic. The alignment of piping and the arrangement of equipment shall be varied from that indicated on the Plans to suit the equipment furnished, without additional cost. Contractor shall submit to Construction Manager complete detailed drawings of the proposed installation, following the manufacturer's recommendations, in adequate time for proper sleeving and conduit work involved with the building structure.

2.02 VACUUM REGULATORS and AUTOMATIC SWITCHOVER VALVES

A. Vacuum regulators shall be rated for 200 ppd with integral switchover capability. They shall be Wallace & Tiernan Model S10K.

2.03 CHLORINE GAS FILTER

A. Chlorine gas filters shall be Chlorine Specialties, Inc. Model No. C282 or approved equal.

2.04 ROTOMETERS

A. Chlorine rotometers shall be Wallace & Tiernan Model S10K V-Notch panels with 3” 200 ppd glass rotometer tubes, to be mounted integrally on the S10K vacuum regulators.

2.05 FLOW PROPORTIONAL VALVE

A. Each Flow Proportional Control Panel shall automatically control the feed rate of gas chlorine into the system to maintain a desired residual. The proportioning valve shall operate with a 4 mA to 20 mA signal from the flow meter. Panels shall operate on 115V ac single-phase power. Valve

shall be able to operate from 32 degrees F to 120 degrees F with a calibration accuracy of 0.25 percent from zero.

1. The V10K flow proportion control panel shall include a 200 ppd, 10-inch rotometer and integral chlorine vacuum gauge.

B. Control Panel shall be Wallace & Tiernan V10K Gas Chlorination System with SFC-SC controller.

2.06 VACUUM SWITCH

A. Remote mounted loss of vacuum switch shall be W&T model W3T99114 with isolation valve.

2.07 EJECTOR ASSEMBLY

A. Ejector shall be 200 ppd High Pressure type rated for 350 psi working pressure. Ejector shall be manufactured from high impact plastic. Ejector shall be Enchlor 200 ppd 0.250 Nozzle / 0.358 Throat.

1. Contractor shall furnish piping flanges for the ejector to match the system requirements. Also, furnish an inline check valve (Enchlor SCVE-2B) to match the system.
2. Ejector shall be disassembled and inspected by Construction Manager and Contractor prior to installation. Any ejector that, in the opinion of Construction Manager, does not appear to be of good quality and workmanship shall be replaced by Contractor at no additional cost to Owner.

2.08 RETRACTABLE INJECTION QUILL ASSEMBLY

A. Injector quill for the 20-inch steel pipe shall have a 2-inch main connection, Corp Stop, by 1-1/2-inch solution tube that extends into the pipe by one third the diameter. Injection Quill Assembly shall be a SAF-T-FLO Chemical Injection Assembly, Series. EB-150 “Or-equal.”

B. Back pressure valves to prevent siphoning shall be Griffco G-Series Back Pressure Valve, Hayward PBV Series, “Or-equal” with a 0-375 psi rating.

2.09 CYLINDER SCALES

A. Scales shall be capable of holding 150 lbs cylinders. Platforms shall be corrosion resistant and have a low profile. Each platform shall include an electronic stainless steel load cell with an output of a 4-20 mA signal. Scales shall be Force Flow Model DR150-4 or approved equal.

1. Scales shall include and be mounted within the chlorine cylinder racks.

B. Electronic Scale Indicator shall be capable of monitoring four scales. The indicator shall be Wizard 4000-4 or approved equal.

2.10 CHLORINE BOOSTER PUMP

A. Contractor shall furnish and install NSF 61 certified chlorine booster pump as shown on the Drawings.

1. Chlorine pump for Well 16 shall be equipped with a minimum 5 hp, 480V ac, three-phase, 60 hertz, 3,600 rpm TEFC inverter duty motor (SF 1.15) with Integral VFD. The pump shall be rated to 350 psi and have a design flow of 30.0 gallons per minute at 232 feet. Pump shall be stainless steel. Pump shall be Grundfos CRE 5-13 A-FGJ-A-E_HQQE vertical pump "Or-equal."

2.11 WATER SUPPLY LINE

A. Contractor shall furnish and install water supply line as shown on the Drawings including all valves, PVC pipe, stainless steel pipe, high pressure hose, tubing, corp stops, couplings, and any other accessories necessary to have a complete and ready to use system. PVC pipe shall be Schedule 80 or Schedule 120 as noted. Stainless steel pipe shall be Type 316 standard wall thickness with stainless steel fittings as noted on the Drawings.

2.12 PVC BALL VALVES

A. PVC ball valves for the chlorination solution piping shall be Spears Industrial Grade Sealed Unit with PTFE ball seats, EPDM O-rings, and high impact handle. Valves shall be full port rated for water to 235 psi.

2.13 PIPING, HIGH-PRESSURE HOSE, AND TUBING

A. Piping, pressure hose, and tubing shall be suitable to handle the pressure and chlorine solution carried as recommended by the manufacturer.

B. Piping and fittings shall be PVC and stainless steel as noted on the drawings. PVC pipe shall be Schedule 80. Stainless steel pipe shall be Type 316 standard wall with stainless steel fittings as noted on the drawings. The pressure hose shall be NSF 61 certified, reinforced with Type 316 stainless steel ends, and be rated for a minimum of 500 psi.

C. High pressure hose shall be PTFE smooth core with FDA 21 CFR 177.1550, ISO 10993 Certifications and with a temperature range to 100 degrees F. The hose shall be stainless steel reinforced with a silicone jacketing. Hose shall be APFOS-WC-2000 by AdvantaPure "Or-equal."

2.14 CHLORINE CYLINDER RACKS AND SAFETY CABINETS

A. Chlorine Cylinder Racks shall be built with 2-inch square steel heavy gauge tubes welded and sealed with powder coated epoxy. Racks shall have two levels of safety chains with bit snaps. Units shall meet or exceed the requirements for UFC, NFPA, CGA, and OSHA, as well as Seismic Zone 4 requirements. Chlorine cylinder racks shall be ASGE Series SSR-12 or approved equal.

B. Safety Cabinets shall be McMaster Carr 4669T1 with double doors, no approved equal. Cabinet shall be bolted to the floor.

2.15 SAFETY EQUIPMENT

A. No Safety Equipment required.

2.16 HAZARDOUS MATERIAL IDENTIFICATION SIGNS

A. Contractor shall furnish hazardous material identification signs on the exterior of all doors leading into the Chlorine Room:

1. NFPA 704 Diamond Placard:
   a. Health Hazard (Blue): 4
   b. Fire Hazard (Red): 0
   c. Reactive Hazard (Yellow): 0
   d. Specific Hazard (White): OX
2. For outdoor applications, signs shall be
   a. Sign Dimension: 10” x 14”
   b. Manufacturer: Northern Safety and Industrial, or approved equal.
   c. Material: 0.118” thick outer aluminum with a solid thermoplastic Dura-AlumaLite as manufactured by Northern Safety and Industrial, or approved equal.
   d. Model:
      1) “Danger Chlorine” model #231- 29843

B. Contractor shall furnish hazardous material identification signs inside the Chlorine Room:

1. For indoor applications, signs shall be:
   a. Sign Dimension: 10” x 14”
   b. Manufacturer: Northern Safety and Industrial, or approved equal.
   c. Material: 0.060” thick polycarbonate material with overlaminate Dura-Plastic as manufactured by Northern Safety and Industrial, or approved equal.
   d. Model:

1) "Keep All Cylinders Chained" model #231-30333
2) "Notice – Empty Cylinders" model #231-29870
3) "Notice – Full Cylinders" model #231-29871

2.17 VENTS

A. Tubing vents shall extend to the outside of structures and be turned down and be equipped with a No. 14 mesh noncorrodible screen.

B. Intake vents shall be motor operated and have #14 mesh screens.

2.18 MULTI-POINT TOXIC GAS DETECTION SYSTEM

A. A multi-point gas detector shall be supplied for monitoring the concentration of Chlorine in the Chlorine Facility. The system shall consist of a NEMA 4X alarm module and a remote mounted gas sensor/transmitter for chlorine gas. A sensor/transmitter shall provide the gas measurement function for the system. The sensor/transmitters shall consist of a stable electrochemical gas sensor that shall generate a signal linearly proportional to gas concentration. The entire assembly shall be coated to minimize RFI interference. Each sensor/transmitter shall be supplied with an electrochemical gas generator closely coupled to the sensor which shall automatically generate a small concentration of gas every 24 hours to verify sensor operation. During the verification test, alarm relays shall be inhibited. A battery backup module shall be supplied to provide standby power to the gas detector. The battery backup module shall be housed in a NEMA 4X enclosure and shall be suitable for operating the detector for at least 4 hours.

B. Two programmable alarm set points shall be provided for warning personnel of differing levels of leakage. Gas leak alarms shall be indicated by flashing LED indicators on the alarm receiver and activation of the SCADA system. The concentration of the gas shall be displayed directly in PPM units. Three alarm relays shall be provided for external alarming functions. Each alarm relay shall be independently assignable to either the low or the high alarm set point, and shall be provided on each receiver to indicate the loss of signal from the sensor/transmitter, or to alarm the loss of sensitivity of the gas sensor. Each receiver shall provide an isolated 4-20 mA output signal proportional to gas concentration, and shall also contain remote reset input terminals to allow alarm acknowledge from a remote location.

C. The gas detection system shall be Wallace & Tiernan Acutec 35 Gas Detection System, ATI Series A14, or approved equal.

D. System shall include a flashing beacon light with wall mounted bracket, to warn operator from entering room. Light shall be Edwards Signaling & Security System Series 50 or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. All equipment shall be installed as per manufacturers' directions. Weight of valves, hoses and equipment must not be carried by the fittings themselves. Proper support for all equipment shall be provided.

B. Chlorination injection points shall have anti-siphon valves and diffuser piping as required mounted horizontally.

C. Vents shall extend to the outside of structure and be turned down and be equipped with a noncorrodible screen.

D. Chlorine detector sensor shall be mounted not higher than 2 feet 6 inches above the lowest floor elevation and at least 4 feet away from the exhaust fans.

E. Chlorine equipment appurtenances shall be installed in accordance with CI-01 and CI Pamphlet 6 to provide a complete and integrated system in accordance with the instruction of the manufacturer.

F. Chlorine ejector shall be placed on the piping to protect it from damage and installed per manufacturer's instruction.

3.02 START-UP AND TESTING

A. Contractor and Equipment Supplier (ES) shall verify that structures, equipment, pumps, and motors are compatible for an efficient system.

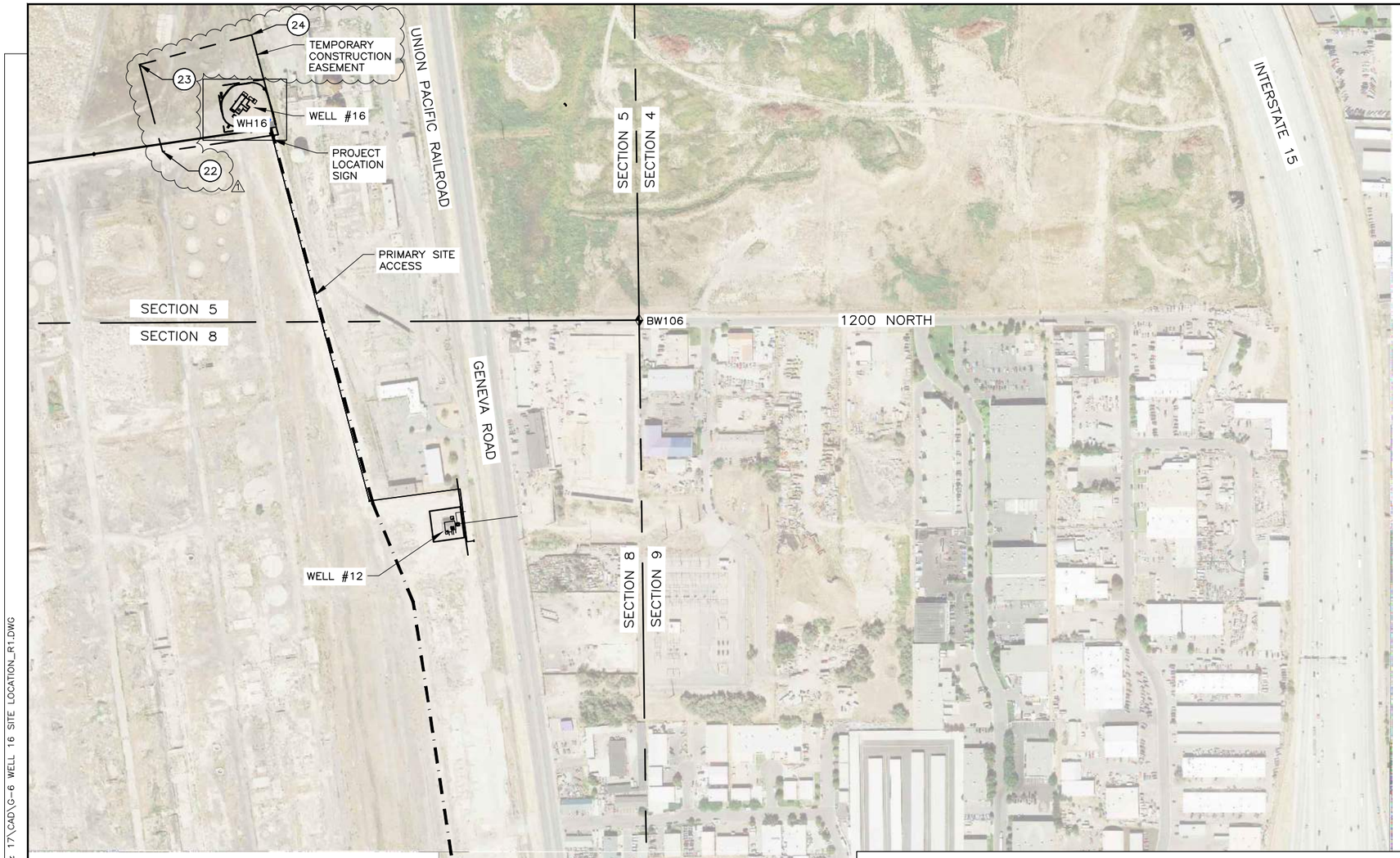
B. Contractor and ES shall make equipment adjustments required to place system in proper operating condition.

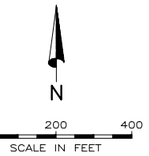
C. Contractor and ES shall test the chlorination feed systems for proper operation in the presence of the Owner and Construction Manager. The ES shall furnish all testing equipment and devices required.

D. If chlorination feed systems fail to meet any of the specified performance requirements, Contractor and/or ES shall modify and/or replace defective equipment until it meets specified requirements.

E. All piping shall be tested hydrostatically for leaks. If any deficiencies are revealed during any tests, such deficiencies shall be corrected, and the tests shall be reconducted.

END OF SECTION





GENERAL NOTES:

1. SEE SHEET C-5 FOR COORDINATES.

SURVEY CONTROL TABLE			
CONTROL POINT	NORTHING	EASTING	DESCRIPTION
WH16	7,285,700.44	1,573,839.65	WELL #16

ALL COORDINATES SHOWN ARE IN UTAH STATE PLANE 83. CENTRAL ZONE, US SURVEY FEET, MODIFIED TO GROUND USING BASE POINT OF:
NORTHING 7,300,903.73
EASTING 1,564,367.58
ELEVATION 4500.25
SCALE FACTOR 1.000200484

NOTE: CONTROL POINTS SHOWN IN GRAYSCALE ARE NOT LOCATED IN THE PLAN VIEW SHOWN ABOVE

SURVEY CONTROL TABLE				
CONTROL POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
BW100	7,280,257.80	1,572,640.61	4546.76	PK NAIL IN ASPHALT PARKING LOT
BW101	7,290,289.71	1,569,739.21	4504.04	SECTION CORNER BRASS CAP
BW102	7,287,639.30	1,569,773.94	4517.13	QUARTER SECTION CORNER
BW103	7,290,319.25	1,572,384.24	4556.82	QUARTER SECTION CORNER
BW104	7,290,333.00	1,575,046.81	4576.61	SECTION CORNER BRASS CAP
BW105	7,287,641.12	1,575,090.61	4563.28	QUARTER SECTION CORNER
BW106	7,285,017.19	1,575,130.65	4576.76	SECTION CORNER BRASS CAP
BW107	7,282,360.33	1,575,167.18	4570.40	QUARTER SECTION CORNER
BW108	7,279,700.38	1,575,204.23	4564.07	SECTION CORNER BRASS CAP
BW109	7,277,040.13	1,575,206.53	4553.06	QUARTER SECTION CORNER
BW110	7,274,379.65	1,575,209.27	4553.55	SECTION CORNER BRASS CAP
BW111	7,274,359.71	1,572,544.93	4537.43	QUARTER SECTION CORNER
BW112	7,296,645.92	1,569,773.30	4523.85	SECTION CORNER BRASS CAP
CP-UVU	7,280,314.27	1,572,738.79	4549.15	PK NAIL IN SIDEWALK - UVU SOCCER FIELDS

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\G-6 WELL 16 SITE LOCATION_R1.DWG
FILE DATE: 6.1.2023 14:13:22 (JRB)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 198750 MICHAEL E. ALLEN STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MMC
DRAFTED	JRB
CHECKED	MEA
DATE	MAY 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1	06/01/23	ADDENDUM NO. 1	JRB	MMC

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
GENERAL
WELL 16 LOCATION & SURVEY CONTROL

SHEET G-6

207.27.200

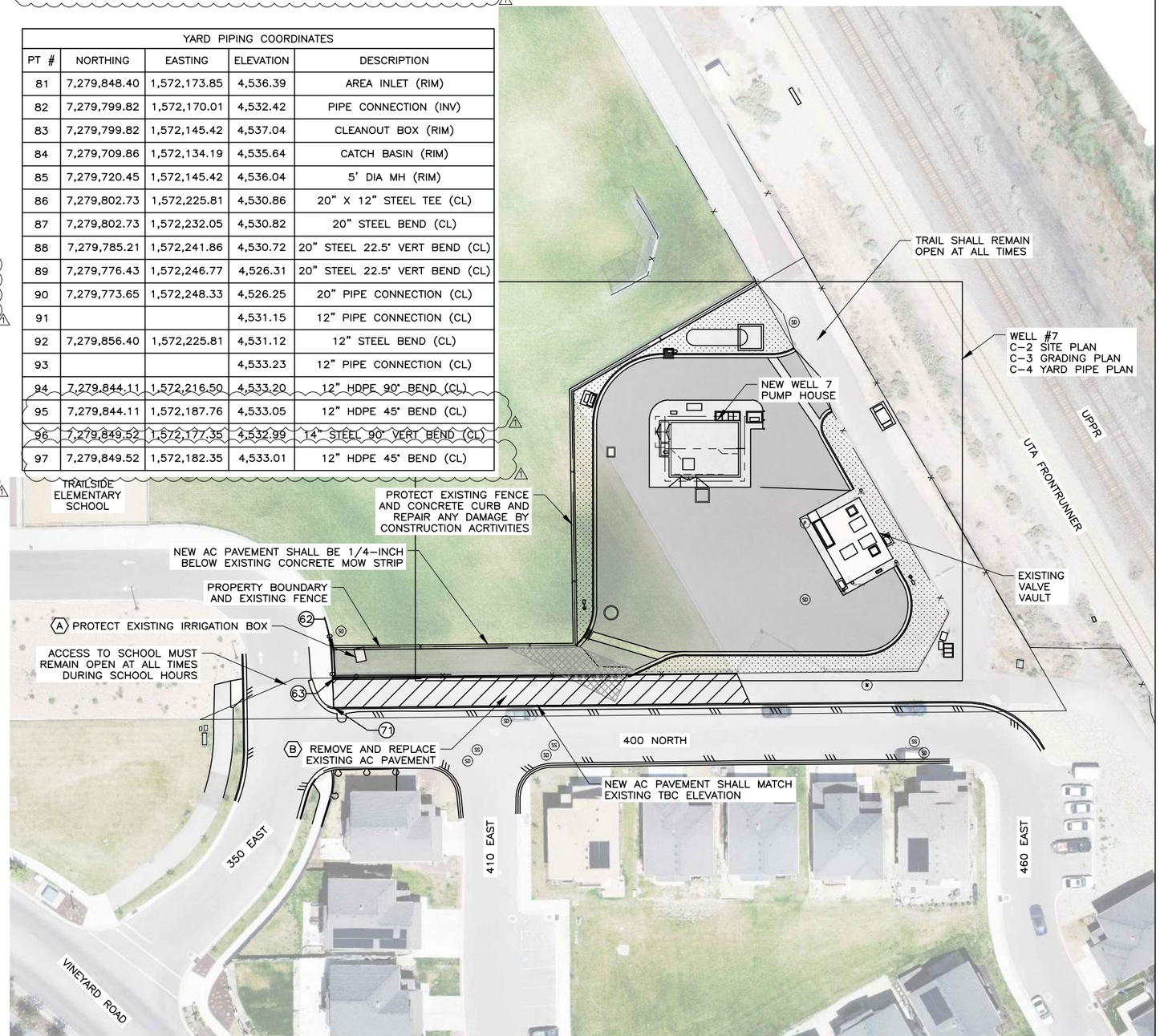
7/04

GRADING PLAN COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
21	7,279,782.40	1,572,164.35	4,538.12	EOA
22	7,279,782.40	1,572,174.01	4,538.32	EOA
23	7,279,782.40	1,572,209.35	4,538.32	EOA GB
24	7,279,782.40	1,572,214.35	4,538.22	EOA
25	7,279,787.40	1,572,214.35	4,538.32	EOA GB
26	7,279,815.40	1,572,220.29	4,538.19	EOA
27	7,279,819.90	1,572,220.29	4,538.17	EOA PC, R=5.5'
28	7,279,825.40	1,572,214.79	4,538.21	EOA PT
29	7,279,825.40	1,572,173.85	4,538.22	EOA PC, R=9.5'
30	7,279,815.90	1,572,164.35	4,538.31	EOA PT
31	7,279,815.40	1,572,164.35	4,538.32	EOA GB
32	7,279,797.40	1,572,164.35	4,538.32	EOA GB
33	7,279,782.43	1,572,164.37	4,538.46	TOC
34	7,279,782.43	1,572,174.01	4,538.65	TOC GB
35	7,279,782.43	1,572,209.35	4,538.65	TOC GB
36	7,279,782.43	1,572,214.32	4,538.55	TOC
37	7,279,787.40	1,572,214.32	4,538.65	TOC GB
38	7,279,815.40	1,572,220.27	4,538.19	TOC GB
39	7,279,819.90	1,572,220.27	4,538.17	TOC PC, R=5.5'
40	7,279,825.38	1,572,214.79	4,538.21	TOC PT
41	7,279,825.38	1,572,173.85	4,538.55	TOC PC, R=9.48'
42	7,279,815.90	1,572,164.38	4,538.64	TOC PT
43	7,279,815.40	1,572,164.38	4,538.65	TOC GB
44	7,279,797.40	1,572,164.37	4,538.65	TOC GB
45	7,279,777.40	1,572,164.35	4,538.02	GB
46	7,279,777.40	1,572,214.35	4,538.12	GB
47	7,279,782.40	1,572,219.35	4,538.12	GB
48	7,279,811.20	1,572,220.29	4,538.18	EOA
49	7,279,767.02	1,572,238.42	4,538.36	EOA
50	7,279,780.78	1,572,263.61	4,538.51	EOA
51	7,279,807.20	1,572,248.83	4,537.79	EOA PC, R=10'
52	7,279,820.66	1,572,252.41	4,537.15	EOA PT
53	7,279,821.35	1,572,253.57	4,537.08	EOA
54	7,279,849.65	1,572,236.59	4,536.94	EOA
55	7,279,849.54	1,572,236.40	4,536.95	EOA PC, R=22'
56	7,279,846.40	1,572,225.08	4,537.43	EOA PT
57	7,279,846.40	1,572,171.35	4,537.16	EOA PC, R=33'
58	7,279,813.40	1,572,138.35	4,537.42	EOA PT
59	7,279,777.40	1,572,138.35	4,537.60	EOA GB
60	7,279,723.27	1,572,138.34	4,535.98	EOA PC, R=27'
61	7,279,703.45	1,572,129.67	4,536.30	EOA PT
62	7,279,702.22	1,572,008.44	4,532.34	EOA
63	7,279,688.23	1,572,009.08	4,532.45	EOA
64	7,279,688.81	1,572,149.87	4,536.40	EOA
65	7,279,698.27	1,572,170.25	4,536.29	EOA PC, R=27'
66	7,279,701.22	1,572,182.57	4,536.40	EOA PT
67	7,279,701.22	1,572,268.91	4,537.27	EOA PC, R=23'
68	7,279,735.46	1,572,288.98	4,538.26	EOA PT
69	7,279,742.86	1,572,284.83	4,538.43	EOA
70	7,279,728.98	1,572,259.99	4,537.86	EOA
71	7,279,673.67	1,572,008.55	4,532.46	EOA
72	7,279,813.62	1,572,247.87	4,537.63	EOA GB

GRADING PLAN COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
73	7,279,811.20	1,572,214.35	4,538.32	EOA
74	7,279,825.40	1,572,209.35	4,538.21	EOA GB
75	7,279,811.23	1,572,214.33	4,538.65	TOC
76	7,279,811.23	1,572,220.27	4,538.18	TOC
77	7,279,825.38	1,572,209.35	4,538.21	TOC GB

YARD PIPING COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
81	7,279,848.40	1,572,173.85	4,536.39	AREA INLET (RIM)
82	7,279,799.82	1,572,170.01	4,532.42	PIPE CONNECTION (INV)
83	7,279,799.82	1,572,145.42	4,537.04	CLEANOUT BOX (RIM)
84	7,279,709.86	1,572,134.19	4,535.64	CATCH BASIN (RIM)
85	7,279,720.45	1,572,145.42	4,536.04	5' DIA MH (RIM)
86	7,279,802.73	1,572,225.81	4,530.86	20" X 12" STEEL TEE (CL)
87	7,279,802.73	1,572,232.05	4,530.82	20" STEEL BEND (CL)
88	7,279,785.21	1,572,241.86	4,530.72	20" STEEL 22.5° VERT BEND (CL)
89	7,279,776.43	1,572,246.77	4,526.31	20" STEEL 22.5° VERT BEND (CL)
90	7,279,773.65	1,572,248.33	4,526.25	20" PIPE CONNECTION (CL)
91			4,531.15	12" PIPE CONNECTION (CL)
92	7,279,856.40	1,572,225.81	4,531.12	12" STEEL BEND (CL)
93			4,533.23	12" PIPE CONNECTION (CL)
94	7,279,844.11	1,572,216.50	4,533.20	12" HDPE 90° BEND (CL)
95	7,279,844.11	1,572,187.76	4,533.05	12" HDPE 45° BEND (CL)
96	7,279,849.52	1,572,177.35	4,532.99	14" STEEL 90° VERT BEND (CL)
97	7,279,849.52	1,572,182.35	4,533.01	12" HDPE 45° BEND (CL)

STRUCTURE COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
11	7,279,793.90	1,572,183.68		CENTER OF WELL
12	7,279,815.40	1,572,209.35	4,538.75	BLD NE CNR
13	7,279,787.41	1,572,209.35	4,538.75	BLD SE CNR
14	7,279,862.90	1,572,220.64	4,526.15	SURGE TANK NE CNR FF
15	7,279,849.90	1,572,220.64	4,526.15	SURGE TANK SE CNR FF



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SCALE IN FEET

GENERAL NOTES:

1. SEE SHEETS C-2, C-3, AND C-4 FOR COORDINATE POINT LOCATIONS.

KEY NOTES:

(A) NEW AC PAVEMENT SHALL BE NO MORE THAN 1/4-INCH BELOW THE TOP OF THE EXISTING IRRIGATION BOX.

(B) NEW AC PAVEMENT SHALL SLOPE FROM EXISTING MOW STRIP TO EXISTING TBC.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-1 WELL 7 AREA PLAN_R1.DWG
FILE DATE: 6.2.2023 14:00:23 (JRB)

7/04

HANSEN ALLEN & LUCE ENGINEERS

LICENSED PROFESSIONAL ENGINEER No. 186750 MICHAEL M. CHAMBERS STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3					
DRAFTED	JRB	2					
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

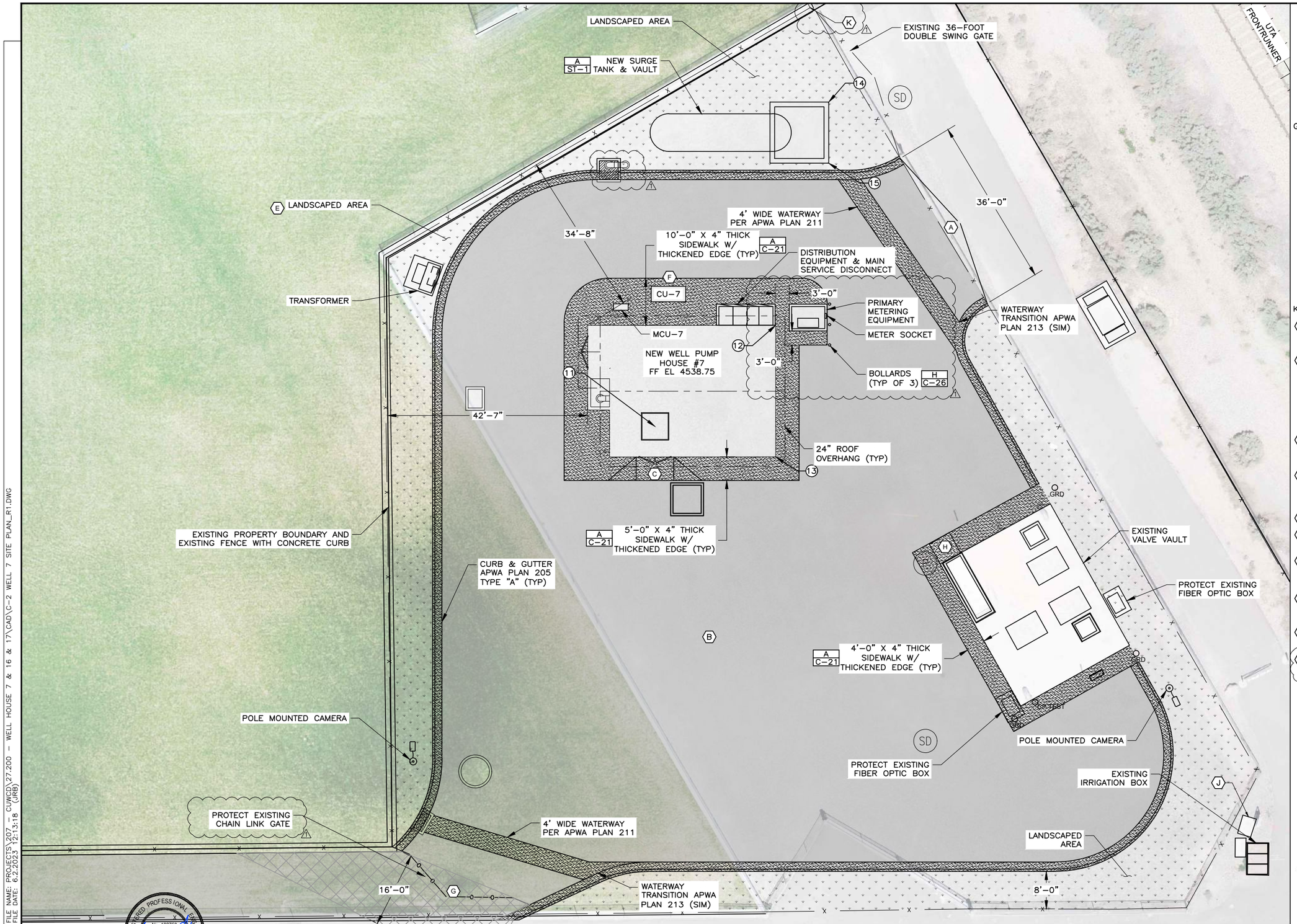
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #7 AREA PLAN & COORDINATES

SHEET C-1

207.27.200



GENERAL NOTES:

1. SEE SHEET C-1 FOR COORDINATES.
2. BORINGS B-1 AND B-2 FROM GEOTECHNICAL INVESTIGATION OF SITE INDICATE APPROXIMATELY 4 FEET OF EXISTING FILL OVERLAYING NATURAL SOILS.
3. EXISTING FILL MATERIALS BENEATH ALL PAVEMENT, EXTERIOR CONCRETE FLATWORK, AND CURB AND GUTTER AREAS SHALL BE COMPLETELY REMOVED TO A DEPTH OF 3 FEET AND REPLACED WITH FILL MATERIAL AS DEFINED IN SECTION 31 23 23.
4. ALL EXISTING FILL MATERIALS BENEATH PUMP HOUSE STRUCTURE SHALL BE COMPLETELY REMOVED AND REPLACED WITH FILL MATERIAL AS DEFINED IN SECTION 31 23 23.

KEY NOTES:

(A) REMOVE EXISTING 36-FOOT DOUBLE SWING GATE AND RELOCATE AS SHOWN. INSTALL NEW POSTS PER TABLE ON SHEET C-23.

(B) PARKING AREA TO BE 4" THICK ASPHALT WITH 8" ROAD BASE AS SHOWN. PRIOR TO PLACING FILL, SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH SECTION 31 23 13 - SUBGRADE PREPARATION. REQUIRED FILL SHALL BE IN ACCORDANCE WITH SECTION 31 23 23 FILL AND BACKFILL OF THE TECHNICAL SPECIFICATIONS.

(C) INSTALL 6" CONCRETE APPROACH TO BUILDING (APWA PLAN 221) W/ #4 BARS @ 24" OC EW.

(D) SEE ELECTRICAL SHEETS FOR ELECTRICAL CONNECTION POINTS. REROUTE ELECTRICAL CONDUITS AND EQUIPMENT AS REQUIRED TO INSTALL ELECTRICAL COMPONENTS.

(E) SEE DRAWING L1.1 FOR LANDSCAPING.

(F) SEE HVAC SHEETS FOR HVAC EQUIPMENT AND PLACEMENT.

(G) AREA 16'-0" IN FRONT OF GATE TO BE PAINTED. PLACE "NO PARKING" SIGN ON EACH GATE.

(H) DEMOLISH EXISTING CONCRETE PAD AND DISPOSE OF MATERIAL OFF-SITE AT AN APPROVED RECYCLING FACILITY.

(J) DEMOLISH EXISTING SERVICE PANEL (SEE SHEET E4.1)

(K) REMOVE I-BEAM CAMERA POLE AND DELIVER TO CUWCD MAINTENANCE YARD ON 1600 NORTH. 1

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-2 WELL 7 SITE PLAN_R1.DWG
FILE DATE: 6.2.2023 12:13:18 (JRB)

HANSEN ALLEN & LUCE, INC. ENGINEERS

LICENSED PROFESSIONAL ENGINEER No. 186750 MICHAEL M. CHAMBERS STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

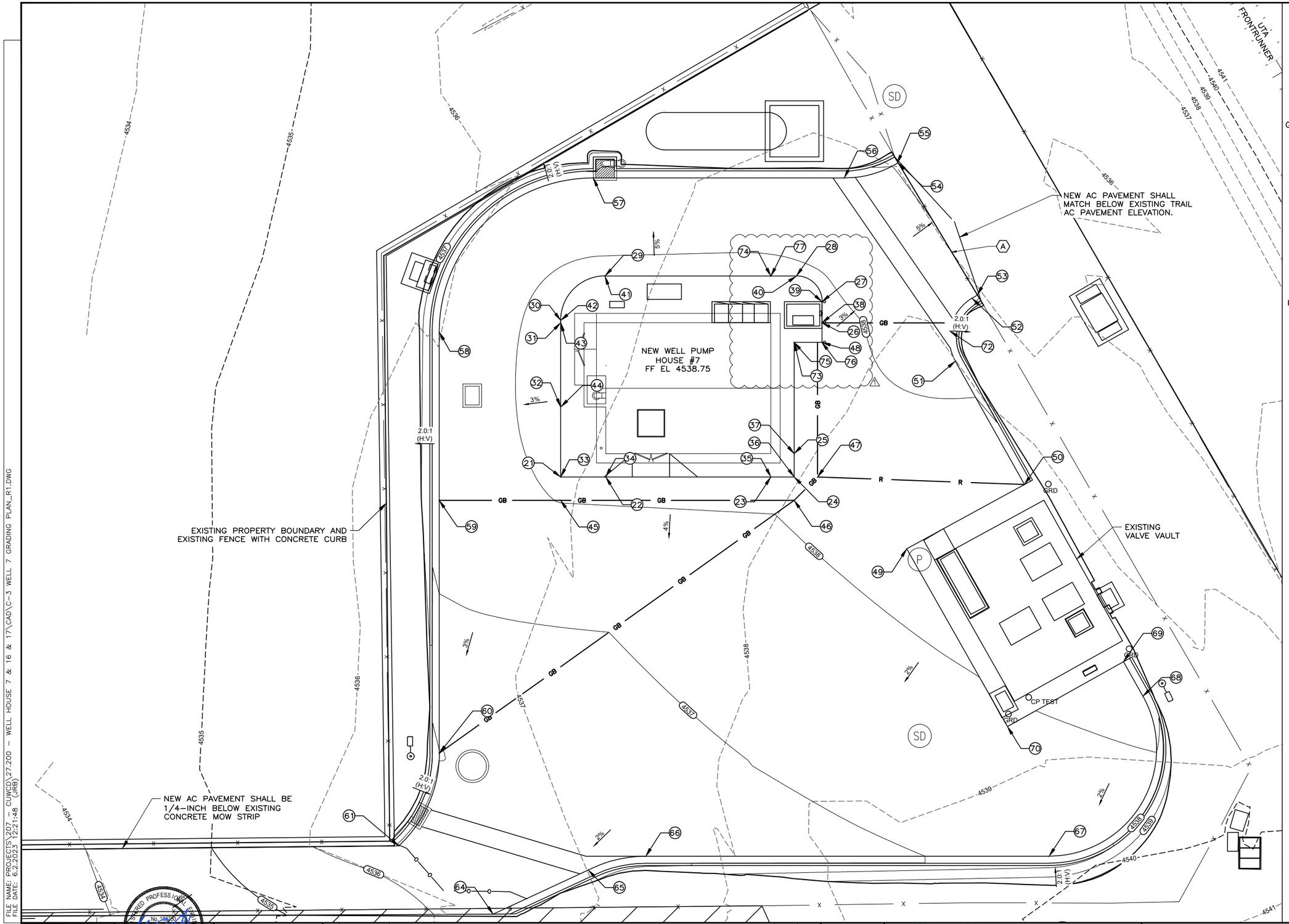
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #7 SITE PLAN

SHEET C-2
207.27.200

7/04



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SCALE IN FEET

GENERAL NOTES:

1. SEE SHEET C-1 FOR COORDINATES.
2. BORINGS B-1 AND B-2 FROM GEOTECHNICAL INVESTIGATION OF SITE INDICATE APPROXIMATELY 4 FEET OF EXISTING FILL OVERLAYING NATURAL SOILS.
3. EXISTING FILL MATERIALS BENEATH ALL PAVEMENT, EXTERIOR CONCRETE FLATWORK, AND CURB AND GUTTER AREAS SHALL BE COMPLETELY REMOVED TO A DEPTH OF 3 FEET AND REPLACED WITH FILL MATERIAL AS DEFINED IN SECTION 31 23 23.
4. ALL EXISTING FILL MATERIALS BENEATH PUMP HOUSE STRUCTURE SHALL BE COMPLETELY REMOVED AND REPLACED WITH FILL MATERIAL AS DEFINED IN SECTION 31 23 23.

KEY NOTES:

(A) SAWCUT AND REMOVE ANY DAMAGED AC PAVEMENT TO A CLEAN, STRAIGHT LINE ACROSS ENTIRE LENGTH OF ACCESS GATE.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-3 WELL 7 GRADING PLAN_R1.DWG
FILE DATE: 6.2.2023 12:21:48 (JRB)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

LICENSED PROFESSIONAL ENGINEER No. 188200 MICHAEL M. CHABRIES STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

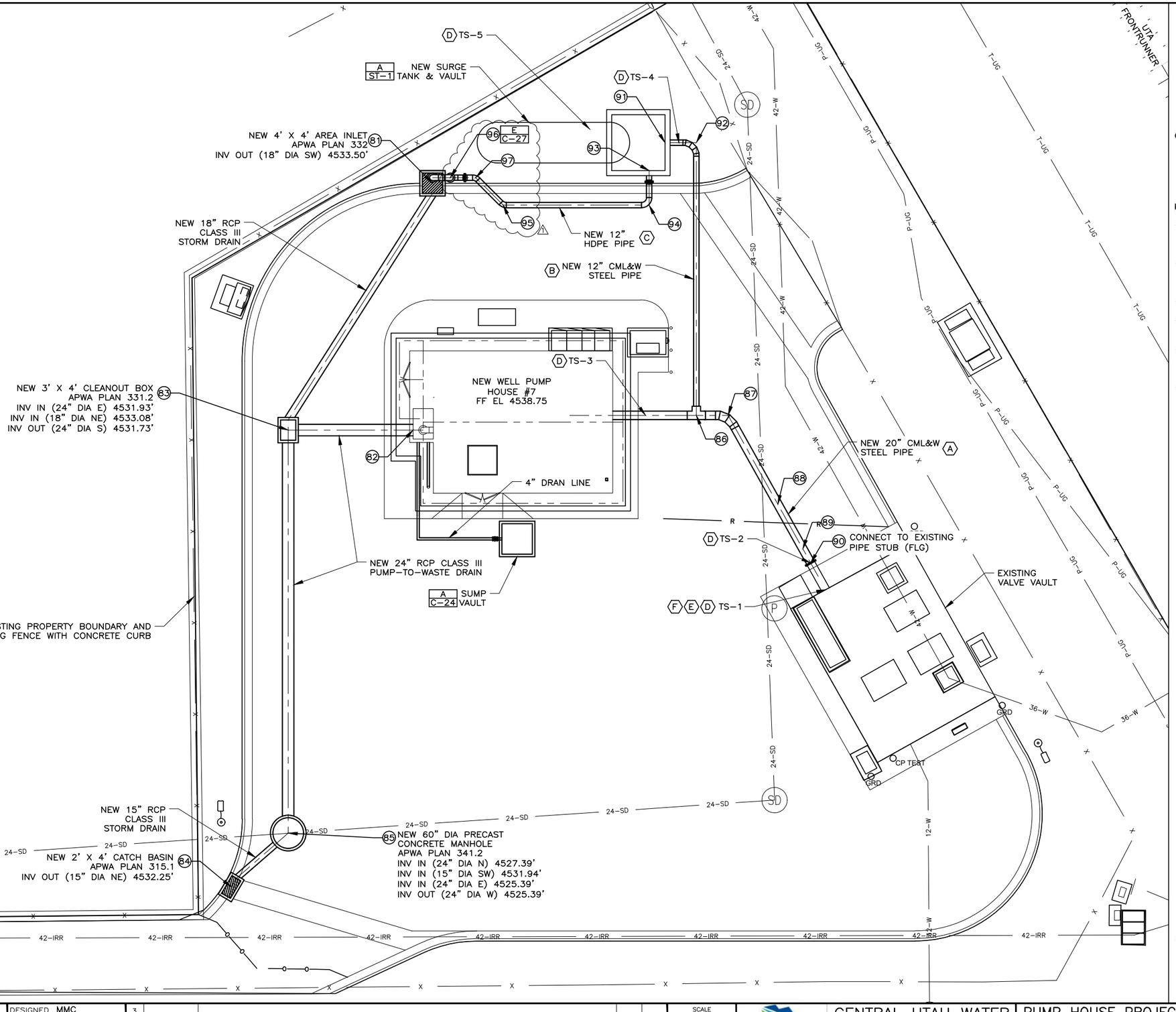
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #7 GRADING PLAN

SHEET C-3
207.27.200

7/04



GENERAL NOTES:

1. SEE SHEET C-1 FOR COORDINATES.
2. PROVIDE JOINT RESTRAINTS ON ALL PRESSURE PIPES, VALVES, AND FITTINGS (SEE SPECIFICATIONS FOR TYPES ALLOWED)

KEY NOTES:

(A) NEW 20-INCH CML&W WITH CEMENT OVERCOAT STEEL PIPE SHALL BE 3/8" MIN WALL THICKNESS.

(B) NEW 12-INCH CML&W WITH CEMENT OVERCOAT STEEL PIPE SHALL BE 3/8" MIN WALL THICKNESS.

(C) NEW 12-INCH HDPE PIPE SHALL BE DR9.

(D) CATHODIC PROTECTION (SEE TEST SCHEDULE ON SHEET CP-1)

(E) MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND STEEL VAULT REINFORCEMENT.

(F) CONTRACTOR TO CONFIRM EFFECTIVENESS OF INSULATOR ON 20-INCH CONNECTION INSIDE EXISTING VALVE VAULT.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-4 WELL 7 YARD PIPE PLAN_R1.DWG
FILE DATE: 6.22.2023 12:24:23 (JRB)

7/04

HANSEN ALLEN & LUCE ENGINEERS

LICENSED PROFESSIONAL ENGINEER No. 188750 MICHAEL E. ANDERSON STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3					
DRAFTED	JRB	2					
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1		JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #7 YARD PIPE PLAN

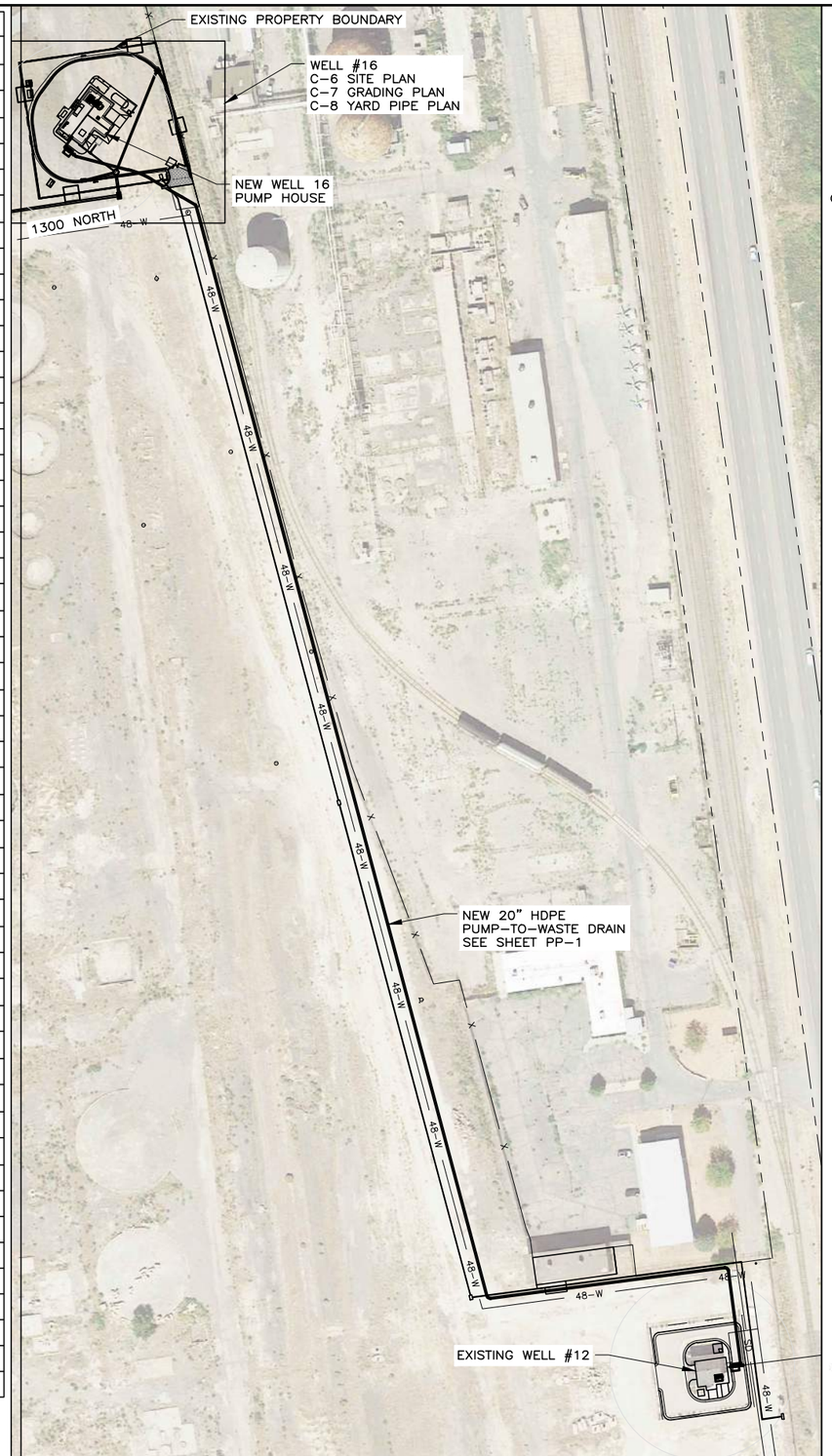
SHEET C-4
207.27.200

STRUCTURE COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
11	7,285,695.35	1,573,839.93		CENTER OF WELL
12	7,285,743.17	1,573,849.01	4,559.25	BLD N CNR
13	7,285,696.83	1,573,814.13	4,559.25	BLD W CNR
14	7,285,724.45	1,573,898.75	4,546.74	SURGE TANK E CNR FF
15	7,285,714.06	1,573,890.93	4,546.74	SURGE TANK S CNR FF
16	7,285,654.57	1,573,930.34	4,557.56	FENCE CNR
17	7,285,644.76	1,573,931.78	4,557.72	FENCE CNR
18	7,285,624.47	1,573,793.74	4,557.76	FENCE CNR
19	7,285,771.15	1,573,772.18	4,556.85	FENCE CNR
20	7,285,792.73	1,573,919.03	4,556.96	FENCE CNR
21	7,285,658.19	1,573,954.91	4,555.92	FENCE CNR
22	7,285,560.71	1,573,593.23		TEMP CONSTRUCTION EASEMENT SW CNR
23	7,285,840.94	1,573,518.48		TEMP CONSTRUCTION EASEMENT NW CNR
24	7,285,937.59	1,573,880.81		TEMP CONSTRUCTION EASEMENT NE CNR

YARD PIPING COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
101	7,285,673.62	1,573,848.19	4,552.15	4" DIP TEE (MJ) (CL)
102	7,285,643.84	1,573,841.27	4,557.62	CATCH BASIN (RIM)
103	7,285,762.53	1,573,921.11	4,557.10	AREA INLET (RIM)
104	7,285,652.67	1,573,876.02	4,557.93	5' DIA MH (RIM)
105	7,285,691.24	1,573,884.85	4,552.62	20" X 12" STEEL CONNECTION (CL)
106	7,285,658.86	1,573,943.02	4,552.28	20" STEEL BEND (CL)
107	7,285,605.46	1,573,950.60	4,552.00	20" CONNECTION ON EXISTING 48" STEEL PIPE (CL)
108			4,551.74	12" PIPE CONNECTION (CL)
109	7,285,715.88	1,573,898.56	4,551.74	12" STEEL 90° BEND (CL)
110			4,555.07	12" PIPE CONNECTION (CL)
111	7,285,733.51	1,573,897.75	4,555.03	12" HDPE 11.25° BEND (CL)
112	7,285,766.91	1,573,913.84	4,555.04	12" HDPE 11.25° BEND (CL)
113	7,285,765.42	1,573,919.91	4,554.99	16" HDPE 90° BEND (CL)
114	7,285,632.95	1,573,878.92	4,551.51	18" RCP PIPE END W/ PLUG (INV)
115	7,285,668.33	1,573,934.60		VAULT N CNR
116	7,285,664.44	1,573,941.59		VAULT E CNR
117	7,285,769.29	1,573,916.74	4,555.02	12" HDPE 90° BEND (CL)

GRADING PLAN COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
31	7,285,673.39	1,573,836.12	4,558.68	EOA PC, R=5.5'
32	7,285,674.48	1,573,843.82	4,558.68	EOA PT
33	7,285,678.74	1,573,847.03	4,558.73	EOA GB
34	7,285,691.79	1,573,856.85	4,558.82	EOA
35	7,285,688.88	1,573,860.72	4,558.82	EOA GB
36	7,285,683.47	1,573,867.91	4,558.69	EOA
37	7,285,685.33	1,573,869.31	4,558.74	EOA GB
38	7,285,698.12	1,573,878.93	4,558.74	EOA GB
39	7,285,724.88	1,573,899.08	4,558.40	EOA
40	7,285,738.71	1,573,880.71	4,558.61	EOA GB
41	7,285,755.85	1,573,857.93	4,558.61	EOA PC, R=5'
42	7,285,754.87	1,573,850.94	4,558.70	EOA PT

GRADING PLAN COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
43	7,285,746.48	1,573,844.62	4,558.81	EOA GB
44	7,285,700.14	1,573,809.74	4,558.81	EOA PC, R=5.5'
45	7,285,692.43	1,573,810.82	4,558.81	EOA PT
46	7,285,685.62	1,573,819.88	4,558.81	EOA GB
47	7,285,675.59	1,573,833.19	4,558.71	EOA GB
48	7,285,673.40	1,573,836.13	4,559.01	TOC PC, R=5.5'
49	7,285,674.48	1,573,843.82	4,559.01	TOC PT
50	7,285,678.75	1,573,847.03	4,559.07	TOC GB
51	7,285,682.74	1,573,850.03	4,558.73	TOC GB
52	7,285,689.13	1,573,854.84	4,558.73	TOC GB
53	7,285,691.80	1,573,856.85	4,559.15	TOC
54	7,285,688.89	1,573,860.72	4,559.15	TOC GB
55	7,285,683.48	1,573,867.90	4,559.02	TOC
56	7,285,685.34	1,573,869.30	4,559.07	TOC GB
57	7,285,689.33	1,573,872.31	4,558.74	TOC GB
58	7,285,709.84	1,573,887.74	4,558.59	TOC GB
59	7,285,715.24	1,573,880.56	4,559.10	TOC GB
60	7,285,713.83	1,573,890.75	4,558.87	TOC GB
61	7,285,724.88	1,573,899.07	4,558.73	TOC
62	7,285,738.70	1,573,880.70	4,558.94	TOC GB
63	7,285,755.85	1,573,857.93	4,558.94	TOC PC, R=5'
64	7,285,754.86	1,573,850.94	4,559.04	TOC GB
65	7,285,746.47	1,573,844.63	4,559.14	TOC GB
66	7,285,700.13	1,573,809.74	4,559.14	TOC PC, R=5.5'
67	7,285,692.44	1,573,810.83	4,559.14	TOC PT
68	7,285,685.63	1,573,819.88	4,559.14	TOC GB
69	7,285,675.60	1,573,833.20	4,559.05	TOC GB
70	7,285,642.89	1,573,959.25	4,556.29	EOA PC, R=12'
71	7,285,649.85	1,573,954.21	4,556.93	EOA PT
72	7,285,743.52	1,573,929.21	4,557.37	EOA PC, R=48'
73	7,285,761.58	1,573,919.95	4,557.26	EOA GB
74	7,285,778.63	1,573,875.85	4,557.67	EOA PT
75	7,285,773.31	1,573,839.64	4,557.97	EOA PC, R=48'
76	7,285,754.69	1,573,808.27	4,558.27	EOA PT
77	7,285,746.71	1,573,802.26	4,558.36	EOA GB
78	7,285,738.73	1,573,796.25	4,558.31	EOA PC, R=48'
79	7,285,702.88	1,573,787.11	4,558.12	EOA PT
80	7,285,680.34	1,573,790.42	4,558.00	EOA PC, R=43'
81	7,285,644.05	1,573,839.22	4,557.66	EOA PT
82	7,285,657.73	1,573,932.35	4,558.14	EOA PC, R=1.5'
83	7,285,656.64	1,573,934.01	4,558.15	EOA PT
84	7,285,649.93	1,573,935.80	4,558.11	EOA PC, R=12'
85	7,285,634.96	1,573,925.95	4,558.00	EOA PT
86	7,285,720.43	1,573,825.01	4,558.81	EOA
87	7,285,723.93	1,573,820.35	4,558.69	EOA
88	7,285,713.28	1,573,812.33	4,558.69	EOA
89	7,285,709.77	1,573,816.99	4,558.81	EOA
90	7,285,720.41	1,573,825.01	4,559.14	TOC
91	7,285,723.92	1,573,820.35	4,559.02	TOC
92	7,285,713.28	1,573,812.34	4,559.02	TOC
93	7,285,709.78	1,573,817.00	4,559.14	TOC



GENERAL NOTES:

1. SEE SHEETS C-6, C-7, AND C-8 FOR COORDINATE POINT LOCATIONS.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-5 WELL 16 AREA PLAN_R1.DWG
FILE DATE: 6.1.2023 15:25:36 (JRB)

HANSEN ALLEN & LUCE ENGINEERS

PROJECT ENGINEER

DESIGNED	MMC	3					
DRAFTED	JRB	2					
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC	
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

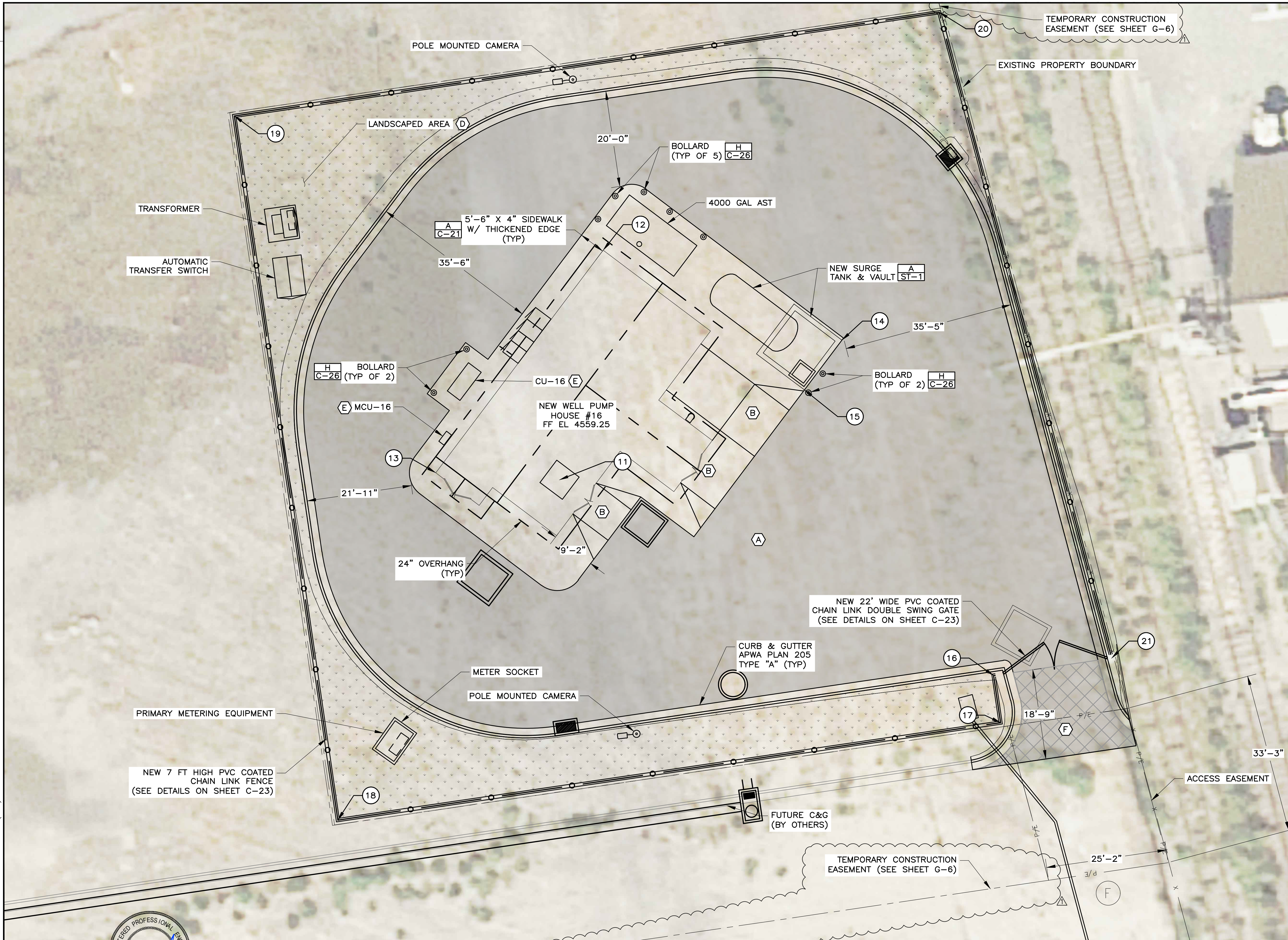
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #16 AREA PLAN & COORDINATES

SHEET C-5

207.27.200

7/04



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SCALE IN FEET

GENERAL NOTES:

1. SEE SHEET C-5 FOR COORDINATES.
2. EXISTING FILL MATERIAL BENEATH THE SITE IS REGULATED AND WILL BE REMOVED BY OTHERS. WORK IS ANTICIPATED TO BE COMPLETED BY THE END OF JULY 2023. NEW FILL MATERIAL TO BE PLACED AS DEFINED IN SECTION 31 23 23.

KEY NOTES:

(A) PARKING AREA TO BE 4" THICK ASPHALT WITH 8" ROAD BASE AS SHOWN. PRIOR TO PLACING FILL, SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH SECTION 31 23 13 – SUBGRADE PREPARATION. REQUIRED FILL SHALL BE IN ACCORDANCE WITH SECTION 31 23 23 FILL AND BACKFILL OF THE TECHNICAL SPECIFICATIONS.

(B) INSTALL 6" CONCRETE APPROACH TO BUILDING (APWA PLAN 221) W/ #4 BARS @ 24" OC EW.

(C) SEE ELECTRICAL SHEETS FOR ELECTRICAL CONNECTION POINTS. REROUTE ELECTRICAL CONDUITS AND EQUIPMENT AS REQUIRED TO INSTALL ELECTRICAL COMPONENTS.

(D) SEE DRAWING L1.2 FOR LANDSCAPING.

(E) SEE HVAC SHEETS FOR HVAC EQUIPMENT AND PLACEMENT.

(F) AREA 18'-9" IN FRONT OF GATE TO BE PAINTED. PLACE "NO PARKING" SIGN ON EACH GATE.

Know what's **below.** 811 Call 811 before you dig.

BLUE STAKES OF UTAH
UTILITY NOTIFICATION CENTER, INC.
www.bluestakes.org
1-800-662-4111

FILE NAME: PROJECTS\207 – CUWCD\27.200 – WELL HOUSE 7 & 16 & 17\CAD\C-6 WELL 16 SITE PLAN_R1.DWG
FILE DATE: 6.2.2023 14:18:99 (JRB)

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

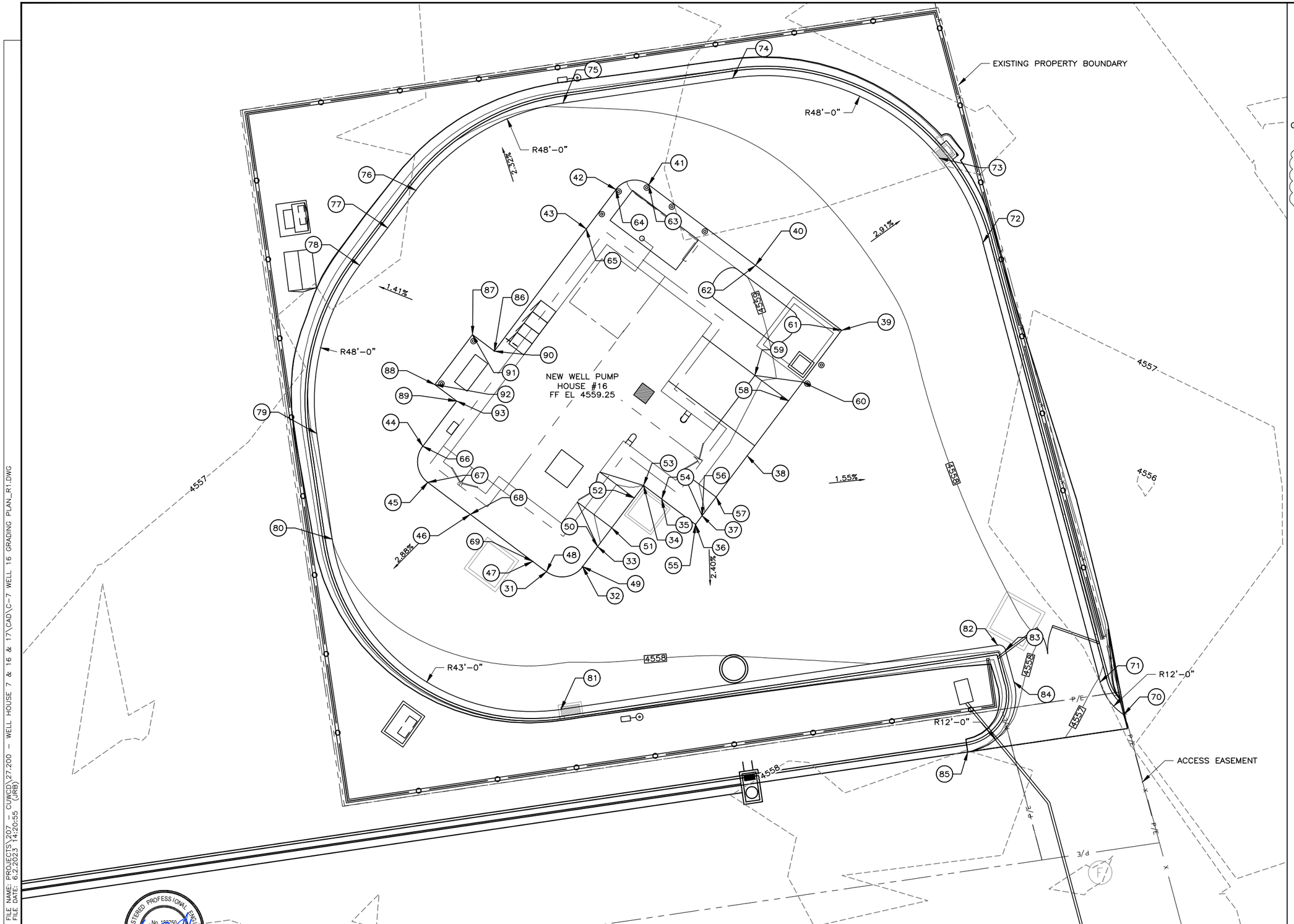
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #16 SITE PLAN

SHEET C-6

207.27.200

7/04



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0 10 20
SCALE IN FEET

GENERAL NOTES:

1. SEE SHEET C-5 FOR COORDINATES.
2. EXISTING FILL MATERIAL BENEATH THE SITE IS REGULATED AND WILL BE REMOVED BY OTHERS. WORK IS ANTICIPATED TO BE COMPLETED BY THE END OF JULY 2023. NEW FILL MATERIAL TO BE PLACED AS DEFINED IN SECTION 31 23 23. ⚠1
3. PRIOR TO PLACING FILL, SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH SECTION 31 23 13 – SUBGRADE PREPARATION. REQUIRED FILL SHALL BE IN ACCORDANCE WITH SECTION 31 23 23 FILL AND BACKFILL OF THE TECHNICAL SPECIFICATIONS.

FILE NAME: PROJECTS\207 – CUWCD\27.200 – WELL HOUSE 7 & 16 & 17\CAD\C-7 WELL 16 GRADING PLAN_R1.DWG
FILE DATE: 6.2.2023 14:20:55 (JRB)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

LICENSED PROFESSIONAL ENGINEER — No. 189750 — MICHAEL E. ALLEN — STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC
DRAFTED	JRB
CHECKED	MEA
DATE	MAY 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1	06/01/23	ADDENDUM NO. 1	JRB	MMC

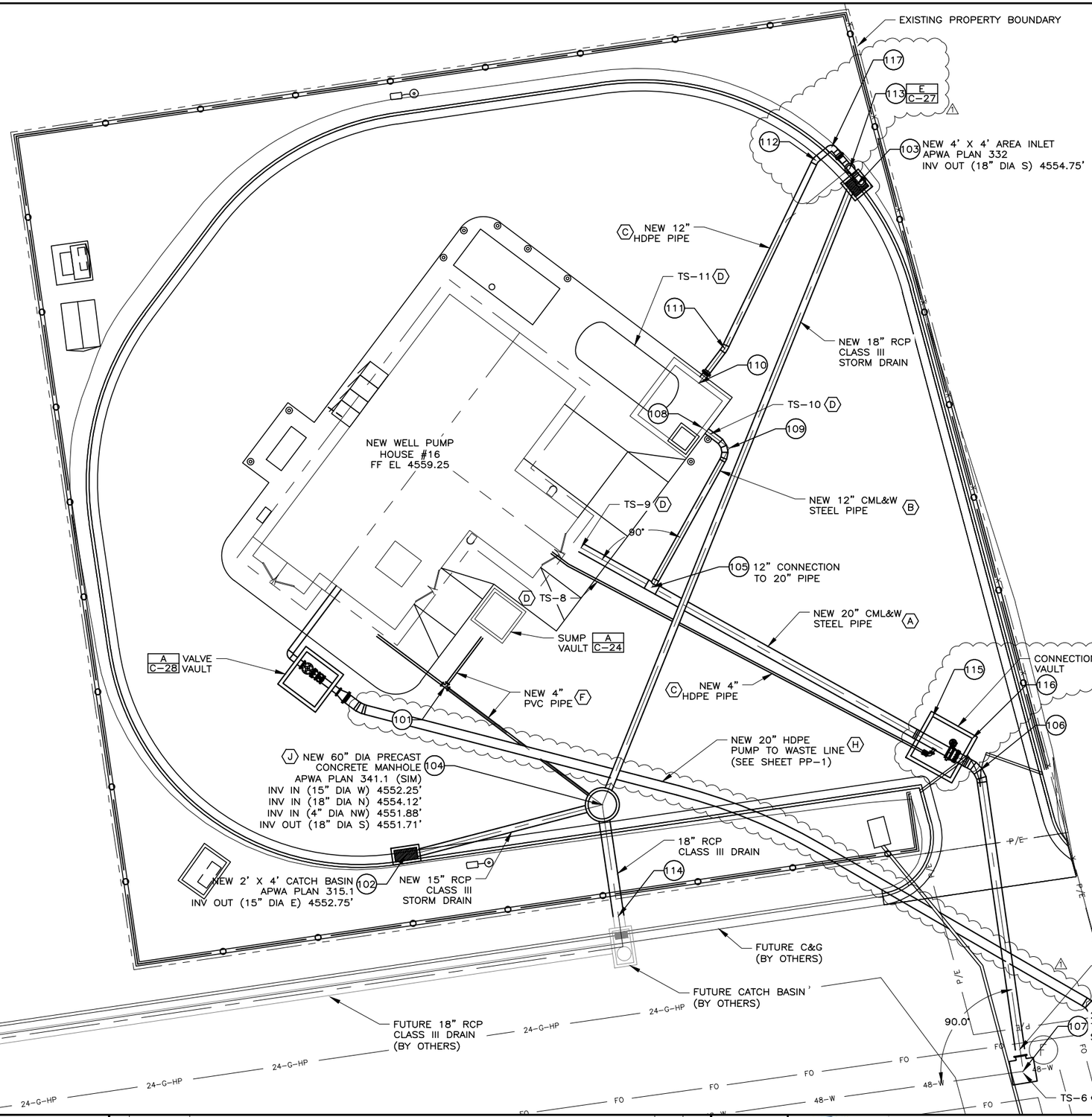
SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #16 GRADING PLAN

SHEET C-7
207.27.200



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0 10 20
SCALE IN FEET

GENERAL NOTES:

1. SEE SHEET C-5 FOR COORDINATES.
2. PROVIDE JOINT RESTRAINTS ON ALL PRESSURE PIPES, VALVES, AND FITTINGS (SEE SPECIFICATIONS FOR TYPES ALLOWED).
3. MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND STEEL VAULT REINFORCEMENT.

KEY NOTES:

(A) NEW 20-INCH CML&W WITH CEMENT OVERCOAT STEEL PIPE SHALL BE 3/8" MIN WALL THICKNESS.

(B) NEW 12-INCH CML&W WITH CEMENT OVERCOAT STEEL PIPE SHALL BE 3/8" MIN WALL THICKNESS.

(C) NEW 4-INCH HDPE PIPE SHALL BE DR9.

(D) CATHODIC PROTECTION (SEE TEST SCHEDULE ON SHEET CP-1)

(E) ADD INSULATING FLANGE KIT BETWEEN NEW AND EXISTING PIPE.

(F) NEW 4-INCH PVC PIPE SHALL BE C-900 DR25.

(G) COORDINATE W/ CUWCD ON 48" PIPE SHUTDOWN.

(H) NEW 20-INCH HDPE PIPE SHALL BE DR15.5.

(J) SOLID WALL MANHOLE SECTIONS TO EL 4551.00 AND PERFORATED MANHOLE SECTIONS TO EL 4546.0

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-8 WELL 16 YARD PLAN_R1.DWG
FILE DATE: 6.1.2023, 16:32:06 (JRB)

7/04

HANSEN ALLEN & LUCE inc ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 188750 MICHAEL R. CHRISTENSEN STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #16 YARD PIPE PLAN

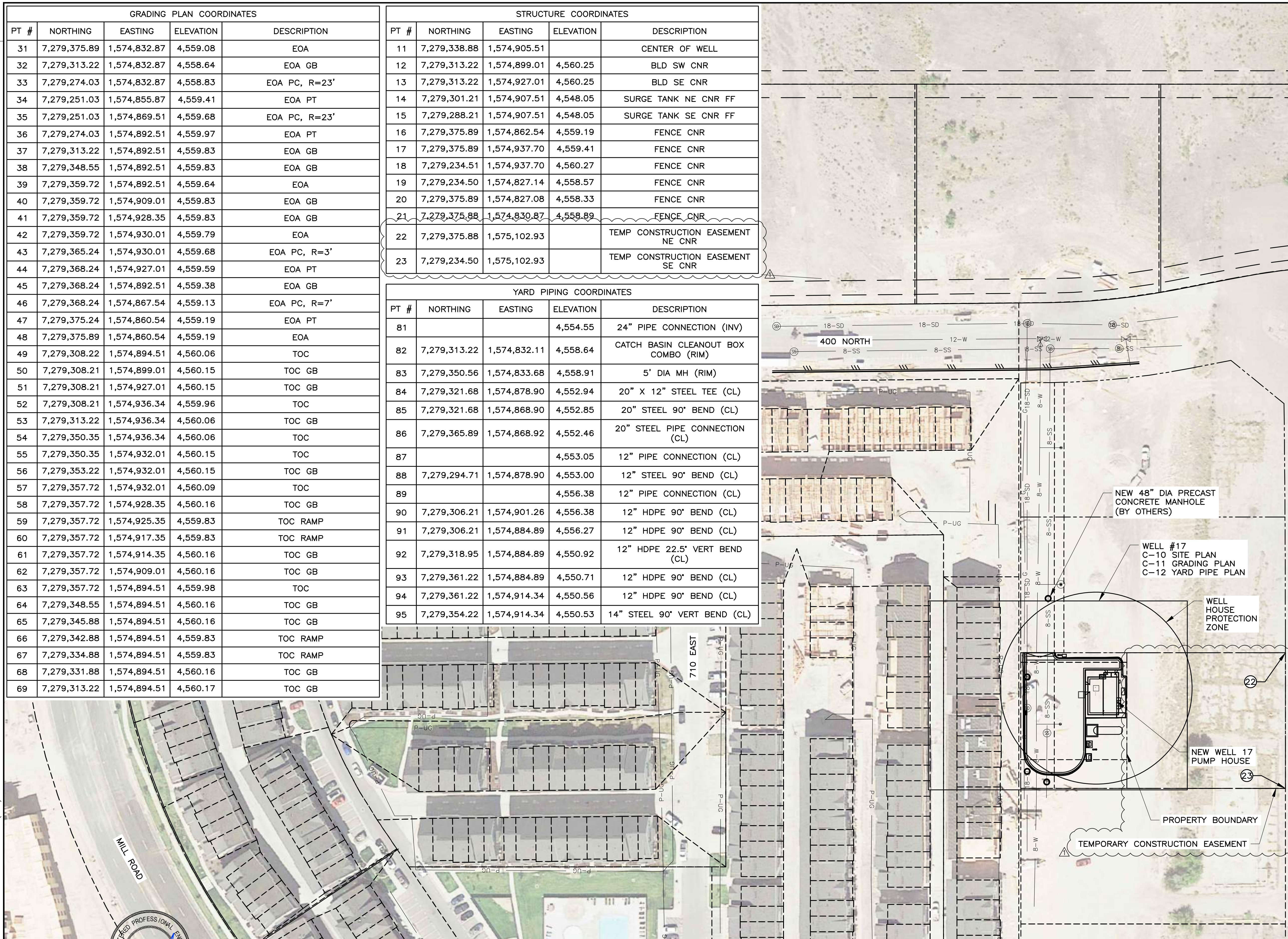
SHEET C-8

207.27.200

GRADING PLAN COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
31	7,279,375.89	1,574,832.87	4,559.08	EOA
32	7,279,313.22	1,574,832.87	4,558.64	EOA GB
33	7,279,274.03	1,574,832.87	4,558.83	EOA PC, R=23'
34	7,279,251.03	1,574,855.87	4,559.41	EOA PT
35	7,279,251.03	1,574,869.51	4,559.68	EOA PC, R=23'
36	7,279,274.03	1,574,892.51	4,559.97	EOA PT
37	7,279,313.22	1,574,892.51	4,559.83	EOA GB
38	7,279,348.55	1,574,892.51	4,559.83	EOA GB
39	7,279,359.72	1,574,892.51	4,559.64	EOA
40	7,279,359.72	1,574,909.01	4,559.83	EOA GB
41	7,279,359.72	1,574,928.35	4,559.83	EOA GB
42	7,279,359.72	1,574,930.01	4,559.79	EOA
43	7,279,365.24	1,574,930.01	4,559.68	EOA PC, R=3'
44	7,279,368.24	1,574,927.01	4,559.59	EOA PT
45	7,279,368.24	1,574,892.51	4,559.38	EOA GB
46	7,279,368.24	1,574,867.54	4,559.13	EOA PC, R=7'
47	7,279,375.24	1,574,860.54	4,559.19	EOA PT
48	7,279,375.89	1,574,860.54	4,559.19	EOA
49	7,279,308.22	1,574,894.51	4,560.06	TOC
50	7,279,308.21	1,574,899.01	4,560.15	TOC GB
51	7,279,308.21	1,574,927.01	4,560.15	TOC GB
52	7,279,308.21	1,574,936.34	4,559.96	TOC
53	7,279,313.22	1,574,936.34	4,560.06	TOC GB
54	7,279,350.35	1,574,936.34	4,560.06	TOC
55	7,279,350.35	1,574,932.01	4,560.15	TOC
56	7,279,353.22	1,574,932.01	4,560.15	TOC GB
57	7,279,357.72	1,574,932.01	4,560.09	TOC
58	7,279,357.72	1,574,928.35	4,560.16	TOC GB
59	7,279,357.72	1,574,925.35	4,559.83	TOC RAMP
60	7,279,357.72	1,574,917.35	4,559.83	TOC RAMP
61	7,279,357.72	1,574,914.35	4,560.16	TOC GB
62	7,279,357.72	1,574,909.01	4,560.16	TOC GB
63	7,279,357.72	1,574,894.51	4,559.98	TOC
64	7,279,348.55	1,574,894.51	4,560.16	TOC GB
65	7,279,345.88	1,574,894.51	4,560.16	TOC GB
66	7,279,342.88	1,574,894.51	4,559.83	TOC RAMP
67	7,279,334.88	1,574,894.51	4,559.83	TOC RAMP
68	7,279,331.88	1,574,894.51	4,560.16	TOC GB
69	7,279,313.22	1,574,894.51	4,560.17	TOC GB

STRUCTURE COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
11	7,279,338.88	1,574,905.51		CENTER OF WELL
12	7,279,313.22	1,574,899.01	4,560.25	BLD SW CNR
13	7,279,313.22	1,574,927.01	4,560.25	BLD SE CNR
14	7,279,301.21	1,574,907.51	4,548.05	SURGE TANK NE CNR FF
15	7,279,288.21	1,574,907.51	4,548.05	SURGE TANK SE CNR FF
16	7,279,375.89	1,574,862.54	4,559.19	FENCE CNR
17	7,279,375.89	1,574,937.70	4,559.41	FENCE CNR
18	7,279,234.51	1,574,937.70	4,560.27	FENCE CNR
19	7,279,234.50	1,574,827.14	4,558.57	FENCE CNR
20	7,279,375.89	1,574,827.08	4,558.33	FENCE CNR
21	7,279,375.88	1,574,830.87	4,558.89	FENCE CNR
22	7,279,375.88	1,575,102.93		TEMP CONSTRUCTION EASEMENT NE CNR
23	7,279,234.50	1,575,102.93		TEMP CONSTRUCTION EASEMENT SE CNR

YARD PIPING COORDINATES				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
81			4,554.55	24" PIPE CONNECTION (INV)
82	7,279,313.22	1,574,832.11	4,558.64	CATCH BASIN CLEANOUT BOX COMBO (RIM)
83	7,279,350.56	1,574,833.68	4,558.91	5' DIA MH (RIM)
84	7,279,321.68	1,574,878.90	4,552.94	20" X 12" STEEL TEE (CL)
85	7,279,321.68	1,574,868.90	4,552.85	20" STEEL 90° BEND (CL)
86	7,279,365.89	1,574,868.92	4,552.46	20" STEEL PIPE CONNECTION (CL)
87			4,553.05	12" PIPE CONNECTION (CL)
88	7,279,294.71	1,574,878.90	4,553.00	12" STEEL 90° BEND (CL)
89			4,556.38	12" PIPE CONNECTION (CL)
90	7,279,306.21	1,574,901.26	4,556.38	12" HDPE 90° BEND (CL)
91	7,279,306.21	1,574,884.89	4,556.27	12" HDPE 90° BEND (CL)
92	7,279,318.95	1,574,884.89	4,550.92	12" HDPE 22.5° VERT BEND (CL)
93	7,279,361.22	1,574,884.89	4,550.71	12" HDPE 90° BEND (CL)
94	7,279,361.22	1,574,914.34	4,550.56	12" HDPE 90° BEND (CL)
95	7,279,354.22	1,574,914.34	4,550.53	14" STEEL 90° VERT BEND (CL)



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SCALE IN FEET: 0 50 100

GENERAL NOTES:

1. SEE SHEETS C-10, C-11, AND C-12 FOR COORDINATE POINT LOCATIONS.

Know what's below. 811 Call 811 before you dig.
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UTILITY NOTIFICATION CENTER, INC.
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1-800-662-4111

FILE NAME: PROJECTS\207 – CUWCD\27.200 – WELL HOUSE 7 & 16 & 17\CAD\C-9 WELL 17 AREA PLAN_R1.DWG
FILE DATE: 6.1.2023 16:56:23 (JRB)

HANSEN ALLEN & LUCE INC ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 189750 MICHAEL M. CHANDLER 6/1/23 STATE OF UTAH
PROJECT ENGINEER

		NO.	DATE	REVISIONS	BY	APVD.
DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023					

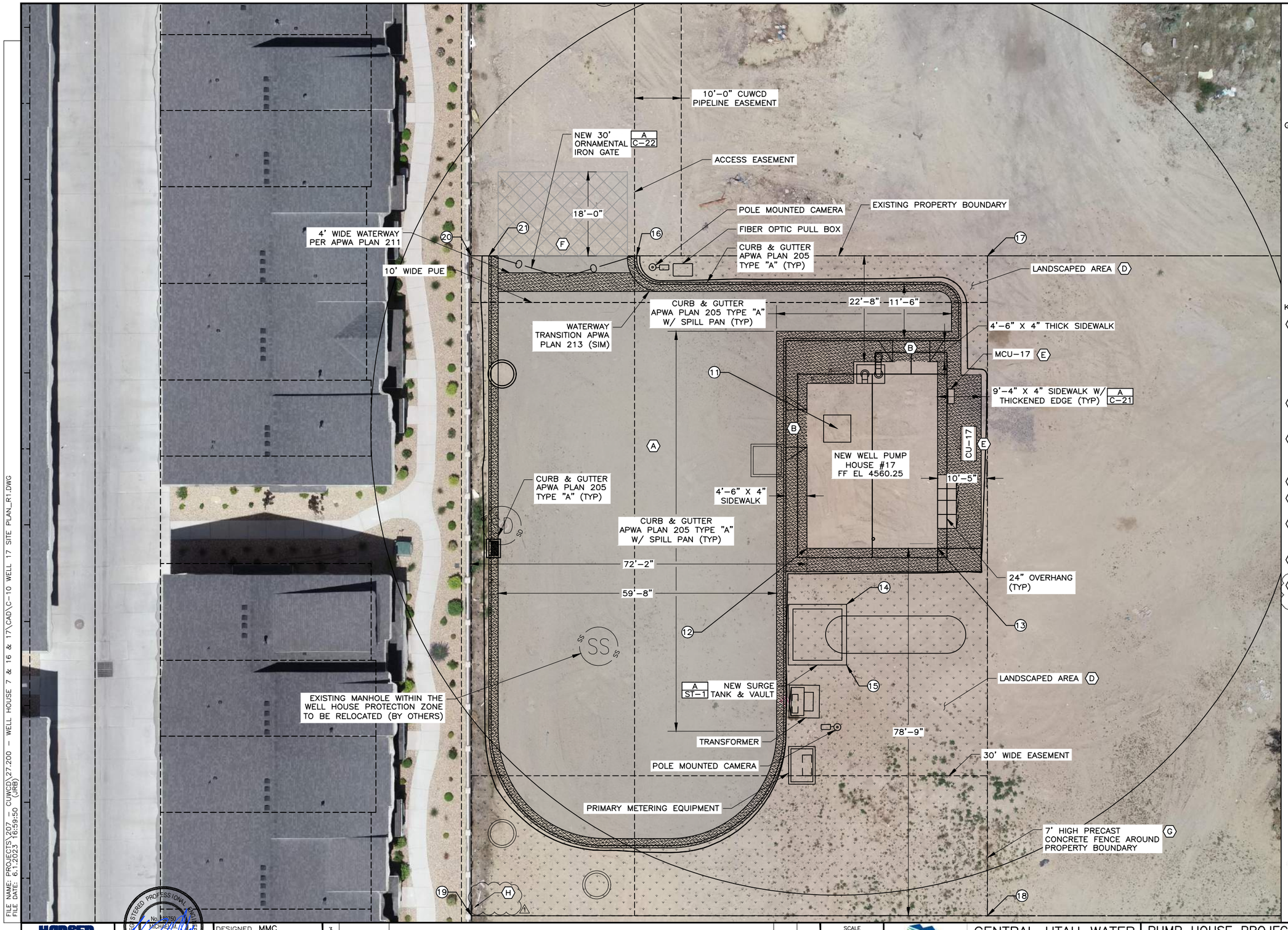
SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #17 AREA PLAN & COORDINATES

SHEET C-9
207.27.200

7/04



N

0 10 20
SCALE IN FEET

GENERAL NOTES:

1. SEE SHEET C-9 FOR COORDINATES.
2. BORINGS FROM GEOTECHNICAL INVESTIGATION OF SITE INDICATE APPROXIMATELY 3.5 FEET AT B-1 AND APPROXIMATELY 3.1 FEET AT B-2 OF EXISTING FILL OVERLAYING NATURAL SOILS.
3. EXISTING FILL MATERIALS BENEATH ALL PAVEMENT, EXTERIOR CONCRETE FLATWORK, AND CURB AND GUTTER AREAS SHALL BE REMOVED TO A DEPTH OF 3 FEET AND REPLACED WITH FILL MATERIAL AS DEFINED IN SECTION 31 23 23.
4. ALL EXISTING FILL MATERIALS BENEATH PUMP HOUSE STRUCTURE SHALL BE COMPLETELY REMOVED AND REPLACED WITH FILL MATERIAL AS DEFINED IN SECTION 31 23 23.

KEY NOTES:

(A) PARKING AREA TO BE 4" THICK ASPHALT WITH 8" ROAD BASE AS SHOWN. PRIOR TO PLACING FILL, SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH SECTION 31 23 13 – SUBGRADE PREPARATION. REQUIRED FILL SHALL BE IN ACCORDANCE WITH SECTION 31 23 23 FILL AND BACKFILL OF THE TECHNICAL SPECIFICATIONS.

(B) INSTALL 6" CONCRETE APPROACH TO BUILDING (APWA PLAN 221) W/ #4 BARS @ 24" OC EW.

(C) SEE ELECTRICAL SHEETS FOR ELECTRICAL CONNECTION POINTS. REROUTE ELECTRICAL CONDUITS AND EQUIPMENT AS REQUIRED TO INSTALL ELECTRICAL COMPONENTS.

(D) SEE DRAWING L1.3 FOR LANDSCAPING.

(E) SEE HVAC SHEETS FOR HVAC EQUIPMENT AND PLACEMENT.

(F) AREA 18'-0" IN FRONT OF GATE TO BE PAINTED. PLACE "NO PARKING" SIGN ON EACH GATE.

(G) MATCH EXISTING TOWNHOMES PRECAST CONCRETE FENCE HEIGHT AND STYLE.

(H) REMOVE I-BEAM CAMERA POLE AND DELIVER TO CUWCD MAINTENANCE YARD ON 1600 NORTH.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-10 WELL 17 SITE PLAN_R1.DWG
FILE DATE: 6.1.2023 16:59:50 (JRB)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 157501 MICHAEL M. CHANEY STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MMC	3					
DRAFTED	JRB	2					
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

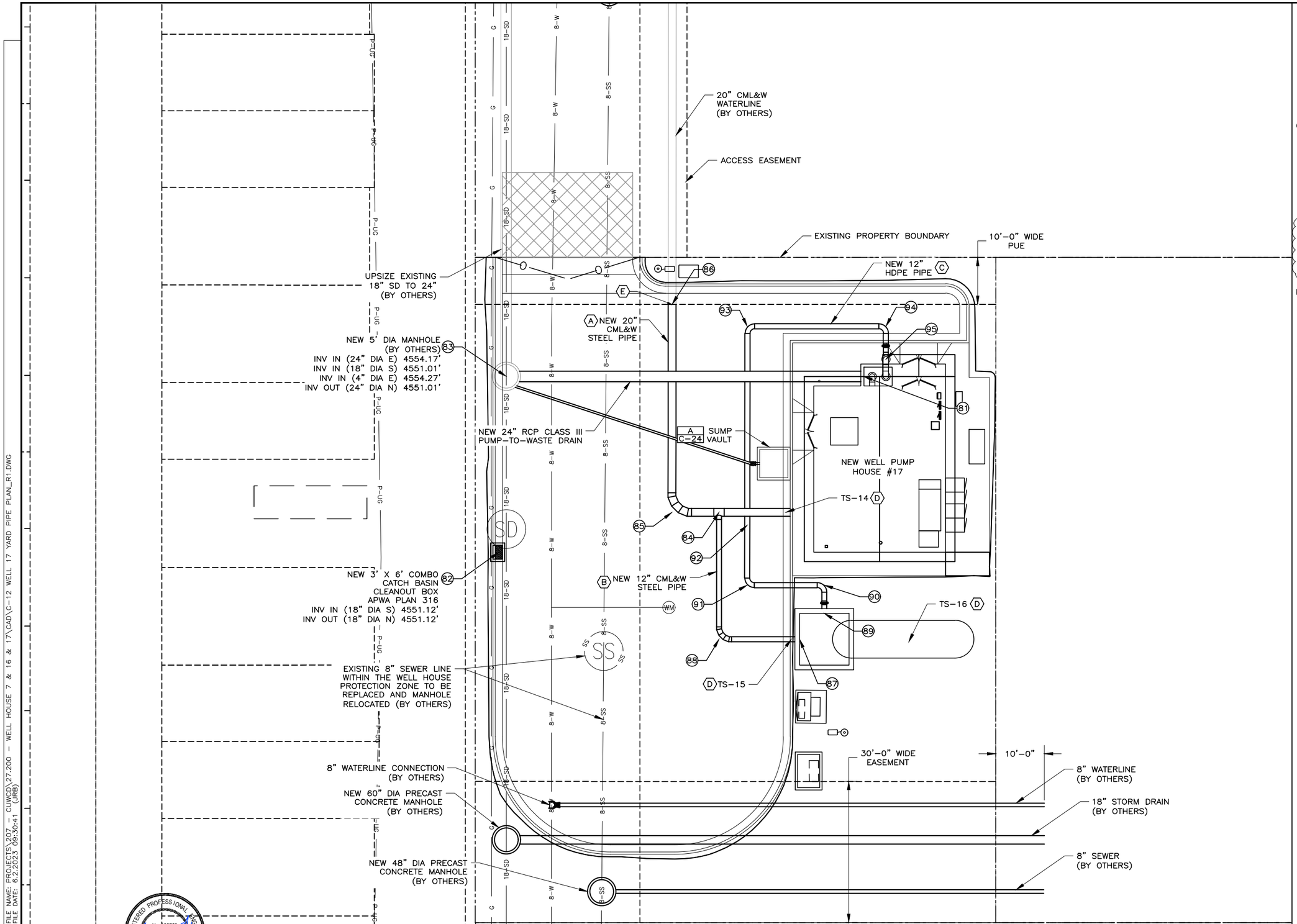
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #17 SITE PLAN

SHEET C-10

207.27.200

7/04



GENERAL NOTES:

1. SEE SHEET C-9 FOR COORDINATES.
2. PROVIDE JOINT RESTRAINTS ON ALL PRESSURE PIPES, VALVES, AND FITTINGS (SEE SPECIFICATIONS FOR TYPES ALLOWED).
3. MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND STEEL VAULT REINFORCEMENT.
4. WORK BY OTHERS IS ANTICIPATED TO BE COMPLETED FROM MARCH 2024 THROUGH AUGUST 2024. CONTRACTOR SHALL COORDINATE WITH UTILITY CONTRACTOR TO ALLOW ACCESS AND ADEQUATE CLEARANCE FOR INSTALLATION OF THESE UTILITIES. ⚠

KEY NOTES:

- (A) NEW 20-INCH CML&W WITH CEMENT OVERCOAT STEEL PIPE SHALL BE 3/8" MIN WALL THICKNESS.
- (B) NEW 12-INCH CML&W WITH CEMENT OVERCOAT STEEL PIPE SHALL BE 3/8" MIN WALL THICKNESS.
- (C) NEW 12-INCH HDPE PIPE SHALL BE DR9.
- (D) CATHODIC PROTECTION (SEE TEST SCHEDULE ON SHEET CP-1)
- (E) CONNECT TO THE 20-INCH PIPE INSTALLED BY OTHERS WITH A BUTT-STRAP. FIELD CUT PIPE AS NEEDED TO MAKE CONNECTION.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-12 WELL 17 YARD PIPE PLAN_R1.DWG
FILE DATE: 6.2.2023 09:30:41 (JRB)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 188750 MICHAEL M. CHAMBERS STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MMC	3			
DRAFTED	JRB	2			
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

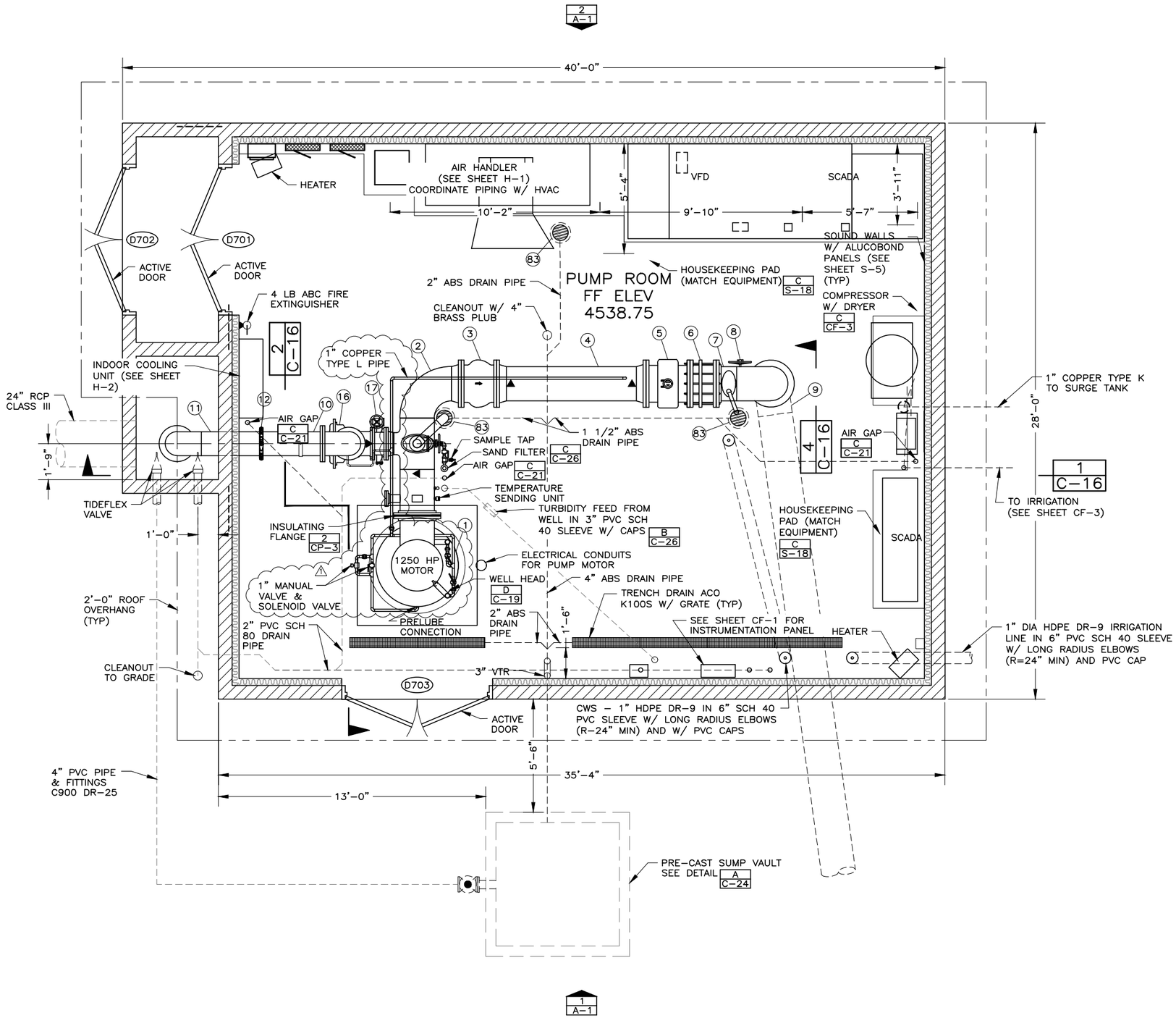
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #17 YARD PIPE PLAN

SHEET C-12

207.27.200

7/04



GENERAL SHEET NOTES:

1. SEE SHEET C-18 FOR VALVE & FITTING SCHEDULE.
2. SEE SHEETS CF-1 FOR CHEMICAL EQUIPMENT SYSTEMS.
3. ▲ DENOTES PIPE SUPPORT LOCATION.
4. ALL ABS PIPE TO BE SCHEDULE 40.
5. SLOPE FLOOR TO DRAINS @ 2.0%.
6. PROVIDE P-TRAPS FOR FLOOR DRAINS, TRENCH DRAINS AND AIR GAP DRAINS.
7. IF CONTRACTOR SUPPLIES WATER COOLED PUMP MOTOR, CONTRACTOR SHALL PROVIDE ALL ADDITIONAL PIPE, VALVES AND CONTROL AT NO ADDITIONAL COST TO OWNER.
8. MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND STEEL VAULT REINFORCEMENT.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-13 WELL 7 FLOOR PLAN__R1.DWG
FILE DATE: 6.1.2023 12:26:27 (CAH)

HANSEN ALLEN & LUCE, INC. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 198750 MICHAEL M. EE STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	CAH	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

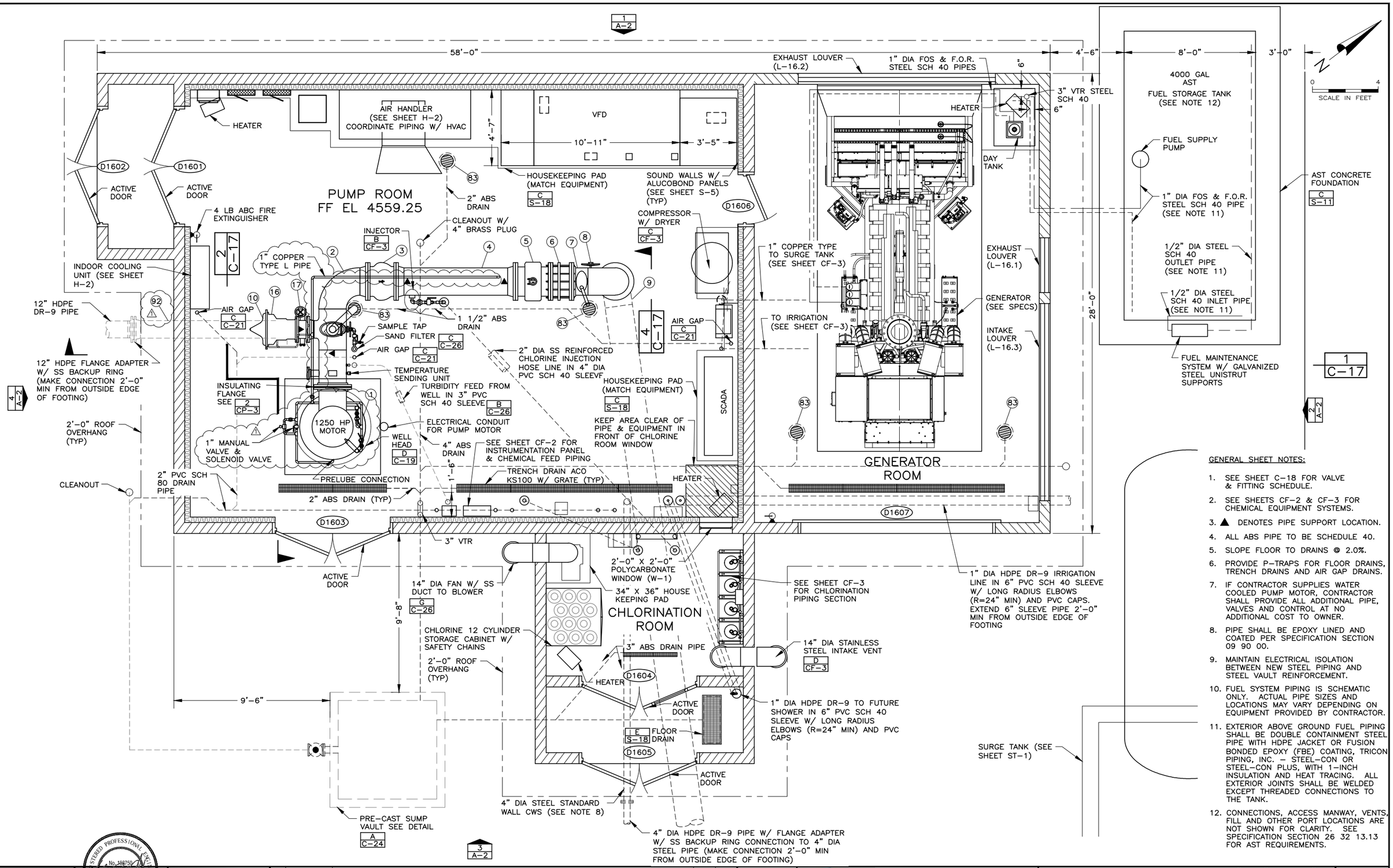
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #7 FLOOR PLAN

SHEET C-13
207.27.200

7/04



GENERAL SHEET NOTES:

1. SEE SHEET C-18 FOR VALVE & FITTING SCHEDULE.
2. SEE SHEETS CF-2 & CF-3 FOR CHEMICAL EQUIPMENT SYSTEMS.
3. ▲ DENOTES PIPE SUPPORT LOCATION.
4. ALL ABS PIPE TO BE SCHEDULE 40.
5. SLOPE FLOOR TO DRAINS @ 2.0%.
6. PROVIDE P-TRAPS FOR FLOOR DRAINS, TRENCH DRAINS AND AIR GAP DRAINS.
7. IF CONTRACTOR SUPPLIES WATER COOLED PUMP MOTOR, CONTRACTOR SHALL PROVIDE ALL ADDITIONAL PIPE, VALVES AND CONTROL AT NO ADDITIONAL COST TO OWNER.
8. PIPE SHALL BE EPOXY LINED AND COATED PER SPECIFICATION SECTION 09 90 00.
9. MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND STEEL VAULT REINFORCEMENT.
10. FUEL SYSTEM PIPING IS SCHEMATIC ONLY. ACTUAL PIPE SIZES AND LOCATIONS MAY VARY DEPENDING ON EQUIPMENT PROVIDED BY CONTRACTOR.
11. EXTERIOR ABOVE GROUND FUEL PIPING SHALL BE DOUBLE CONTAINMENT STEEL PIPE WITH HDPE JACKET OR FUSION BONDED EPOXY (FBE) COATING, TRICON PIPING, INC. – STEEL-CON OR STEEL-CON PLUS, WITH 1-INCH INSULATION AND HEAT TRACING. ALL EXTERIOR JOINTS SHALL BE WELDED EXCEPT THREADED CONNECTIONS TO THE TANK.
12. CONNECTIONS, ACCESS MANWAY, VENTS, FILL AND OTHER PORT LOCATIONS ARE NOT SHOWN FOR CLARITY. SEE SPECIFICATION SECTION 26 32 13.13 FOR AST REQUIREMENTS.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-14 WELL 16 FLOOR PLAN__R1.DWG
FILE DATE: 6.1.2023 12:33:48 (CAH)

HANSEN ALLEN & LUCE, INC. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 168750 MICHAEL M. EDDINGTON STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC		3				
DRAFTED	BKC	CAH	2				
CHECKED	MEA		1	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE	MAY 2023		NO.	DATE	REVISIONS	BY	APVD.

SCALE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

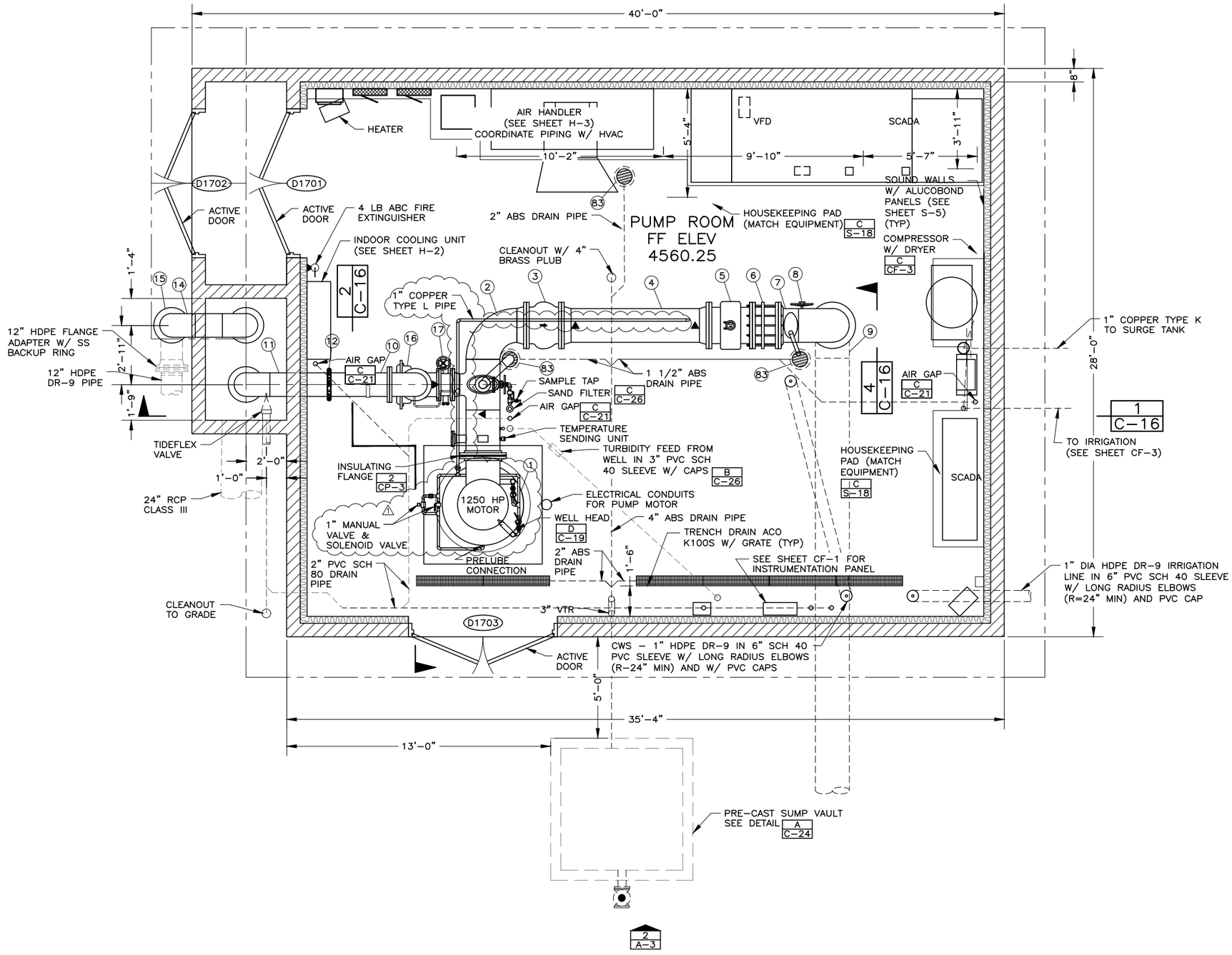
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #16 FLOOR PLAN

SHEET C-14

207.27.200

7/04



GENERAL SHEET NOTES:

1. SEE SHEET C-18 FOR VALVE & FITTING SCHEDULE.
2. SEE SHEETS CF-1 FOR CHEMICAL EQUIPMENT SYSTEMS.
3. ▲ DENOTES PIPE SUPPORT LOCATION.
4. ALL ABS PIPE TO BE SCHEDULE 40.
5. SLOPE FLOOR TO DRAINS @ 2.0%.
6. PROVIDE P-TRAPS FOR FLOOR DRAINS, TRENCH DRAINS AND AIR GAP DRAINS.
7. IF CONTRACTOR SUPPLIES WATER COOLED PUMP MOTOR, CONTRACTOR SHALL PROVIDE ALL ADDITIONAL PIPE, VALVES AND CONTROL AT NO ADDITIONAL COST TO OWNER.
8. MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND STEEL VAULT REINFORCEMENT.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-15 WELL 17 FLOOR PLAN__R1.DWG
FILE DATE: 6.1.2023 12:37:29 (CAH)

HANSEN ALLEN & LUCE, INC. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 188750 MICHAEL M. CHABRIES STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3					
DRAFTED	CAH	2					
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1		CAH	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
WELL #17 FLOOR PLAN

SHEET C-15

207.27.200

7/04

EQUIPMENT & FITTING SCHEDULE

NO.	DESCRIPTION	SIZE	JOINT
1.	PUMP DISCHARGE HEAD	20"	FLG
2.	STEEL WELDMENT – CROSS & 90° BEND W/ FLANGE ((3) TAPS)	20" X 12" X 6" X 4"	FLG
3.	SILENT CHECK VALVE	20"	FLG
4.	SPOOL (TAPPED) STEEL	20"	FLG
5.	MAGNETIC FLOW METER	20"	FLG
6.	DISMANTLING JOINT DJ 400 ROMAC W/ RESTRAINT	20"	FLG
7.	STEEL WELDMENT – 90° BEND (TAPPED)	20"	FLG
* 8.	BUTTERFLY VALVE HIGH PERFORMANCE ASME 250 W/ LS	20"	FLG
9.	WELDMENT – W/ 90° BENDS	20"	FLG X BS
10.	WELDMENT – W/ 90° BEND	14" X 12"	GR X FLG
** 11.	WELDMENT – W/ 90° BEND	14"	GR X FLG
⚠ 12.	VICTAULIC COUPLING #77	14"	GR
** 13.	OUTLET NIPPLE	14"	FLG X PE
** 14.	WELDMENT – 180° BEND	14"	FLG
15.	WELDMENT – REDUCER 90° BEND	14" X 12"	FLG
16.	90° PUMP CONTROL VALVE (ANGLE)	12"	FLG
17.	BUTTERFLY VALVE HIGH PERFORMANCE ASME 150 W/ LS	12"	FLG
18.	NOT USED	–	–
19.	GATE VALVE W/HANDWHEEL	4"	FLG
20.	AIR RELEASE VALVE	4"	FLG
21.	PVC FLANGE	4"	FLG X SW
22.	PIPE PVC SCH 80	4"	SW
23.	90° BEND (PVC)	4"	SW
24.	SCREENED END (#14 SS MESH)	4"	BANDED
25.	PIPE HDPE DR–9 (EXTRUSION WELDED FLANGE)	4"	FLG X EW
26.	REDUCING FLANGE (SS)	4" X 2"	FLG X THD
27.	PIPE SCH 40 (SS)	2"	THD
28.	BALL VALVE (SS)	2"	THD
29.	UNION (SS)	2"	THD
30.	COMBO AIR VALE (APCO 145C)	2"	THD
31.	CHECK VALVE (US VALVE 18–4–4)	2"	THD
32.	REDUCING TEE (SS)	2" X 1"	THD
33.	90° BEND (SS)	2"	THD
34.	PUMP FLANGE (SS)	2"	THD
35.	MAGNETIC FLOW METER (SEE SPECIFICATIONS)	2"	THD
36.	BOOSTER PUMP (SEE SPECIFICATIONS)	2"	MATCH
37.	Y–STRAINER W/ BLOW–DOWN VALVE (SS)	2"	THD
38.	FEMALE ADAPTER (SS)	2"	THD
39.	PRESSURE REDUCING VALVE	2"	THD
40.	REDUCING BUSHING (SS)	2" X 1"	THD

⚠
**HOT DIP GALVANIZE AFTER FABRICATION. CEMENT LINING NOT REQUIRED.

EQUIPMENT & FITTING SCHEDULE

NO.	DESCRIPTION	SIZE	JOINT
41.	REDUCING BUSHING (SS)	2" X 1/2"	THD
42.	CROSS (SS)	2" X 2"	THD
43.	TEE (SS)	2" X 1/2"	THD
⚠ 44.	CROSS (SS)	2" X 2"	THD
45.	TEE PVC SR	2" X 1 1/4"	THD X SW
46.	PIPE PVC SCH 80	2"	SW
47.	FEMALE ADAPTER SR PVC SCH 80	2"	THD X SW
48.	TRUE UNION BALL VALVE (PVC 235PSI)	2"	THD
49.	HIGH PRESSURE HOSE STEEL REINFORCED	2"	THD
50.	90° BEND (PVC) SR	2"	THD
51.	HEX REDUCER	2" X 1 1/2"	THD
52.	BALL VALVE (PVC 235 PSI)	1 1/2"	THD
53.	PIPE PVC SCH 80	1 1/2"	SW
54.	90° BEND PVC SCH 80 SR	1 1/2"	SW
55.	FBV BACK PRESSURE VALVE	1 1/2"	THD
56.	INJECTION QUILL W/ 2" BALL VALVE	1 1/2"	THD
57.	FLANGE PVC SR (MATCH INJECTOR)	1 1/4"	THD X FLG
58.	EJECTOR (SEE SPECS) W/ REDUCING FLANGE	1"	FLG
59.	PIPE PVC SCH 80	1 1/4"	THD
60.	BALL VALVE (TYPE 316 SS)	1"	THD
61.	COMBO AIR VALVE (APCO 143C)	1"	THD
62.	PIPE SCH 40 (SS)	1"	THD
63.	90° TRANSITION BEND PVC SCH 40 SR	2"	THD X SW
64.	PVC PIPE SCH 40	2"	SW
65.	90° BEND PVC SCH 40	2"	SW
66.	SCREENED END (#14 SS MESH)	2"	BANDED
67.	90° BEND (SS)	1"	THD
68.	REDUCING TEE (SS)	1" X 1/2"	THD
69.	CROSS (SS)	1" X 1/2"	THD
70.	PIPE SCH 40 (SS)	1/2"	THD
71.	PRESSURE REDUCING VALVE	1/2"	THD
72.	90° BEND (SS)	1/2"	THD
73.	SOLENOID VALVE	1/2"	THD
74.	BELL REDUCER (SS)	1/2" X 3/8"	THD
75.	ROSUM SAND FILTER	1/2"	THD
76	BALL VALVE (WATTS S–FBV–1) (TYPE 316 SS)	1/2"	THD
77.	PRESSURE TRANSMITTER	1/2"	THD
78.	PRESSURE GAUGE	1/2"	THD
79.	HOSE BIBB W/ ANTI–SIPHON (SS)	1/2"	THD
80.	TUBING ADAPTER	1/2" X 1/4"	THD

* VALVES REQUIRE INSULATING FLANGES, SEE SHEET CP–3.

SR = STAINLESS STEEL REINFORCED
GR = GROOVE
BS = BUTT STRAP
SS = STAINLESS STEEL
S = SOLDER
EW = EXTRUSION WELD
LS = LIMIT SWITCH

EQUIPMENT & FITTING SCHEDULE

NO.	DESCRIPTION	SIZE	JOINT
81.	TUBING (REINFORCED CLEAR PVC 275 PSI)	1/4"	–
82.	PIPE SUPPORT	–	–
83.	9" FLOOR DRAIN	VARIES	HUB
84.	TRUE–UNION BALL VALVE (PVC 235 PSI)	1/2"	THD X SW
85.	REDUCING BUSHING (PVC)	2" X 1/2"	SW X THD
86.	SNUBBER		
87.	PIPE (SS)	1 1/4"	THD
88.	COMPANION FLANGE (SS)	1 1/4"	THD X FLG
89.	UNION (SS)	1"	THD
90.	TEE (SS)	1"	THD
91.	BALL VALVE (TYPE 316 SS)	1/2"	THD
92.	WELDMENT – W/ 90° BEND	12"	FLG
93.	DISMANTLING JOINT DJ 400 ROMAC W/ RESTRAINT	12"	FLG
94.	90° TRANSITION BEND PVC SCH 40 SR	1"	SW
95.	PVC PIPE SCH 40	1"	SW
96.	90° BEND PVC SCH 40	1"	SW
97.	UNION (SS)	1 1/4"	THD
⚠ 98.	UNION (PVC SR)	1 1/4"	THD
99.	REDUCING BUSHING (SS)	2" X 1 1/4"	THD
100.	CAM–LOCK COUPLING W/ CAM–LOCK CAP (SS)	2"	THD X CAM

SHEET NOTES:
1. ALL NIPPLES AT CONNECTION POINT TO MAIN PIPELINE TO BE 2" MAX LENGTH.
2. STEEL PIPE TO BE AMERICAN STANDARD B36.10, STANDARD WALL THICKNESS, ASTM A53 GRADE B.
3. ALL INTERIOR STEEL PIPE SHALL BE EPOXY LINED AND COATED PER SPECIFICATION SECTION 09 90 00. PVC AND STAINLESS STEEL PIPE SHALL NOT BE COATED. STEEL PIPE UNDER BUILDING SHALL HAVE CEMENT MORTAR LINING AND SHALL TRANSITION TO EPOXY LINING AT FIRST JOINT OR A MAXIMUM OF 12" ABOVE SLAB. COATING FOR BURIED STEEL PIPE UNDER BUILDING SHALL BE TAPE WRAPPED WITH CEMENT MORTAR OVERCOAT.
4. ALL PIPE JOINTS & FITTINGS TO HAVE RESTRAINED JOINTS.
5. ALL STAINLESS STEEL PIPE TO BE 316 STANDARD WALL.
6. PRESSURE GAUGES TO BE MINIMUM OF 1.5 X WORKING PRESSURE.
7. SYSTEM WORKING PRESSURE IS 200 PSI, EXCEPT WORKING PRESSURE FROM CHLORINE PUMP TO EJECTOR IS 300 PSI.
8. PROVIDE MO–CAPS ON ALL EXPOSED PIPE BOLTS AND NUTS.

FILE NAME: PROJECTS\207 – CUWCD\27.200 – WELL HOUSE 7 & 16 & 17\CAD\C–18 FITTING SCHEDULE ALL__R1.DWG
FILE DATE: 5.31.2023 16:05:23 (CAH)

HANSEN ALLEN & LUCE INC ENGINEERS

PROFESSIONAL ENGINEER No. 189750 MICHAEL M. CHAMBERS STATE OF UTAH 5/31/23
PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	CAH	2				
CHECKED	MEA	⚠	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

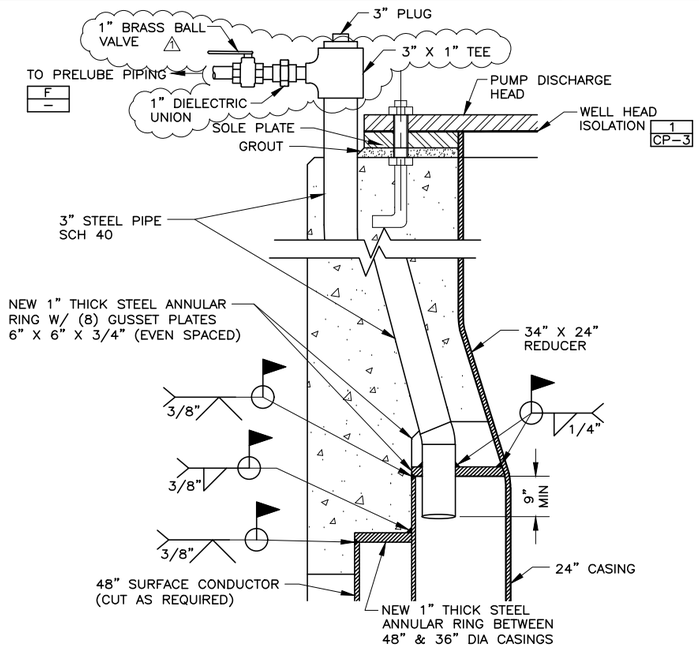
SCALE: NOT TO SCALE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
EQUIPMENT & FITTING SCHEDULE

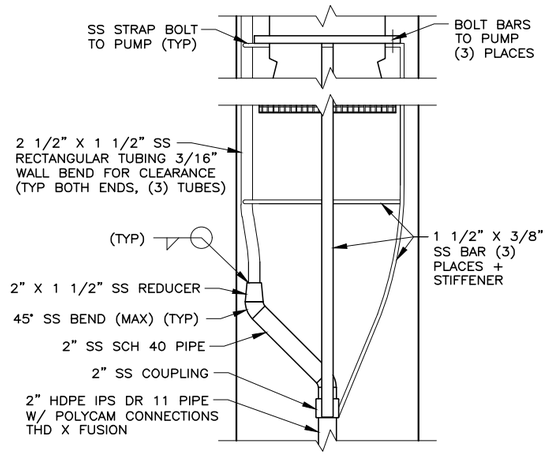
SHEET C–18
207.27.200

7/04



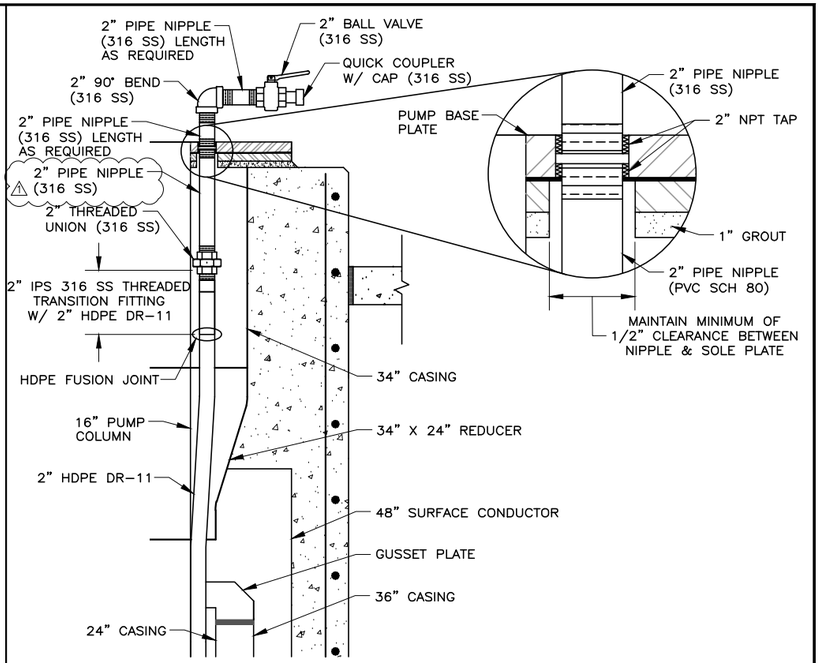
GRAVEL MAKE-UP TUBE DETAIL — A — A C-19

NTS



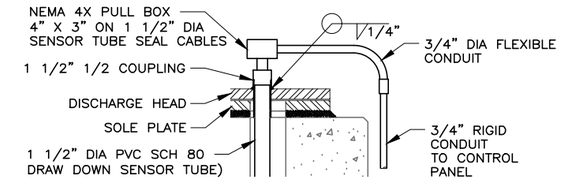
DETAIL — B — C-19

NTS



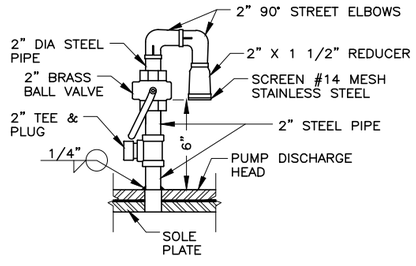
CHEMICAL INJECTION TUBE DETAIL — C — C-19

NTS



SENSOR TUBE DETAIL — D — C-19

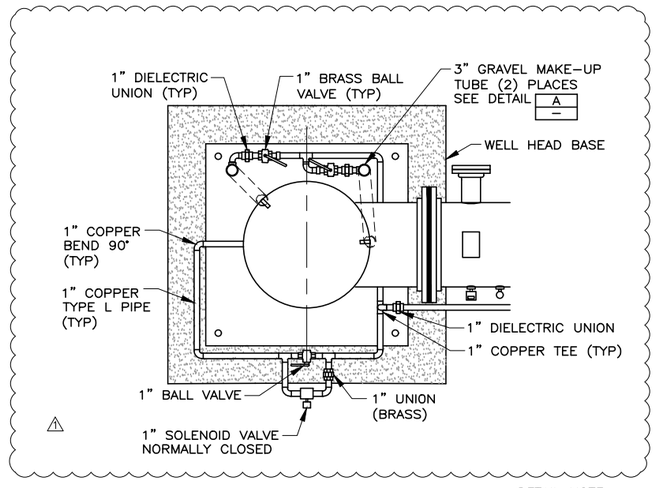
NTS



DETAIL NOTE:
PIPING TO BE STEEL SCH 40 (PAINTED).

CASING VENT DETAIL — E — C-19

NTS



DETAIL NOTE:
INJECTION TUBES NOT SHOWN FOR CLARITY.

PRELUBE PIPING DETAIL — F — F — C-19

NTS

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-20 PUMP BASE DETAILS__R1.DWG
FILE DATE: 6.1.2023 11:02:20 (CAH)

HANSEN ALLEN & LUCE, INC. ENGINEERS

LICENSED PROFESSIONAL ENGINEER No. 198750 MICHAEL M. ANDERSON STATE OF UTAH — PROJECT ENGINEER

DESIGNED	MMC	3					
DRAFTED	CAH	2					
CHECKED	MEA RCC	1	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

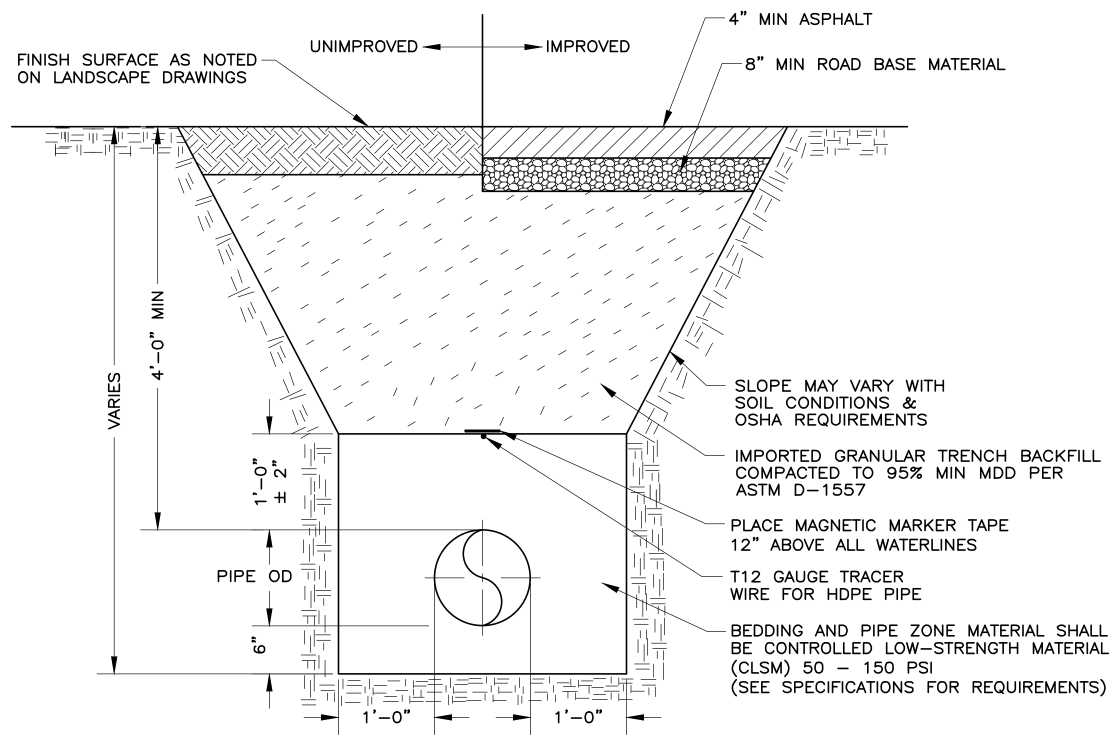
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
PUMP BASE DETAILS

SHEET C-20

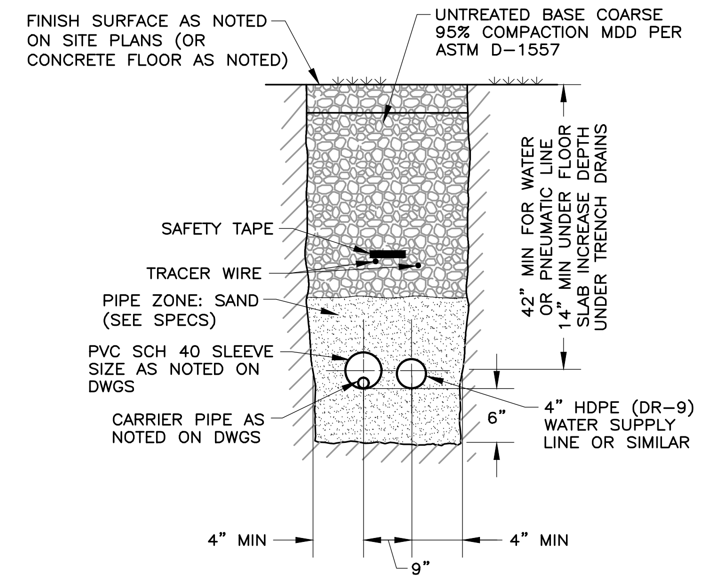
207.27.200

7/04



TYPICAL LARGE PIPELINE TRENCH DETAIL

NTS

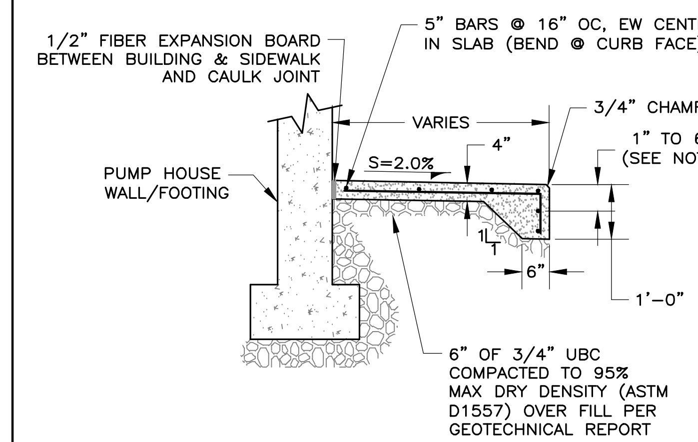


DETAIL NOTES:

1. DETAIL SIMILAR FOR PIPE INSTALLATION WITHOUT SLEEVES & DRAIN LINES FOR DEPTH OR SLOPE NOTED ON DRAWINGS.
2. USE LONG SWEEP BENDS IN ALL SLEEVED PIPE APPLICATIONS.

TYPICAL SMALL DIAMETER PIPELINE TRENCH DETAIL

NTS



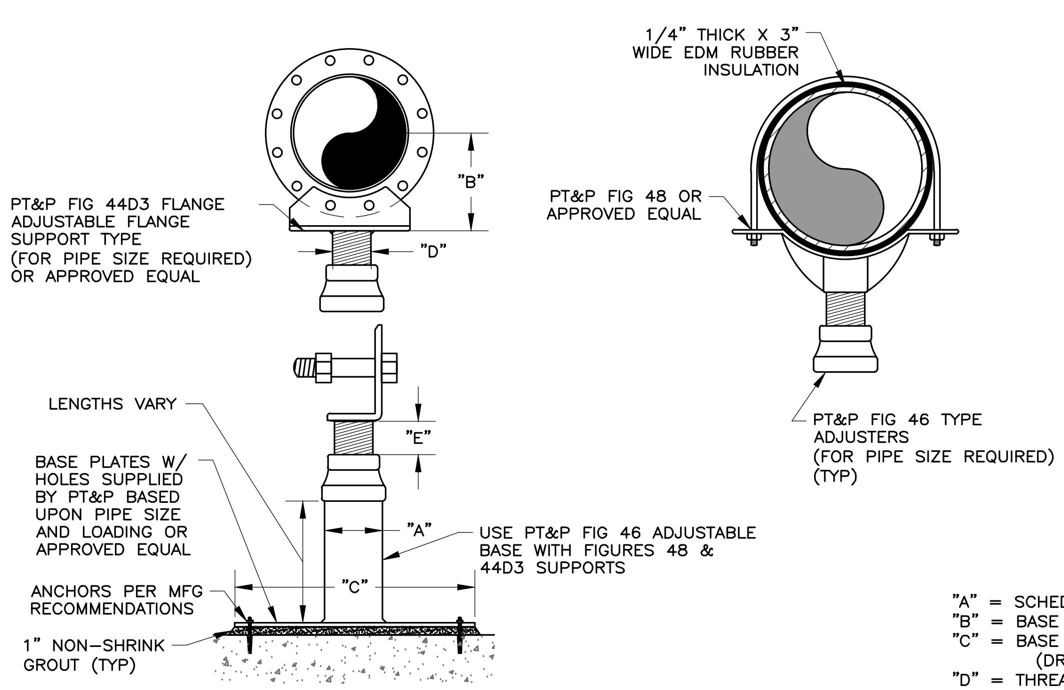
DETAIL NOTE:

REVEAL EDGE OF CONCRETE SLAB IN PAVED AREAS MAY VARY BASED ON PAVEMENT SLOPE REQUIREMENTS FOR DRAINAGE.

THICKENED EDGE SIDEWALK

NTS

A	A	A	A
A-1	A-2	A-3	C-2
A	A	A	A
C-6	C-10	ST-1	ST-2



DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C (SQ)	D	E
4	3	4.25	9	2.50	3.75
6	3	5.50	9	2.50	4.75
8	3	6.87	9	2.50	4.75
10	3	8.50	9	2.50	4.75
12	3	9.93	9	2.50	4.75
14	4	10.93	11	3	4.50
16	4	12.37	11	3	4.50
18	6	13.87	13.50	3.50	4.50
24	6	17.31	13.50	4	4.50
36	6	24.50	13.50	4	4.50

"A" = SCHEDULE 40 PIPE DIAMETER. LENGTH CUT ON SITE.
"B" = BASE OF SADDLE TO CENTER OF PIPE
"C" = BASE PLATE (SQUARE)
(DRILLED AND SLOTTED FROM PT&P)
"D" = THREADED PIPE ADJUSTER DIAMETER
"E" = TOTAL ALLOWABLE ADJUSTMENT

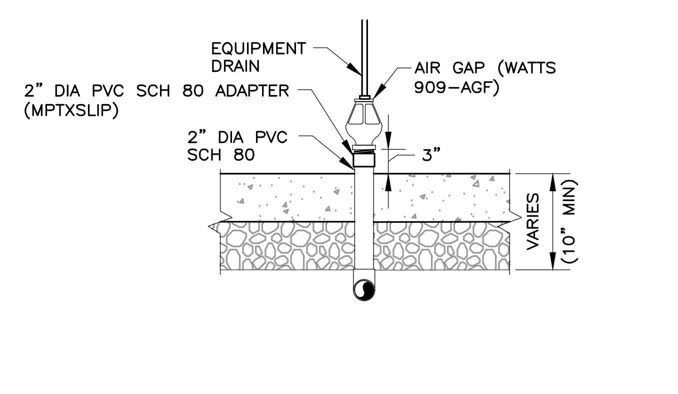
(PT&P = PIPING TECHNOLOGY & PRODUCTS, INC.)

PIPE SUPPORTS

NTS

B	B	B
C-16	C-17	C-24

△



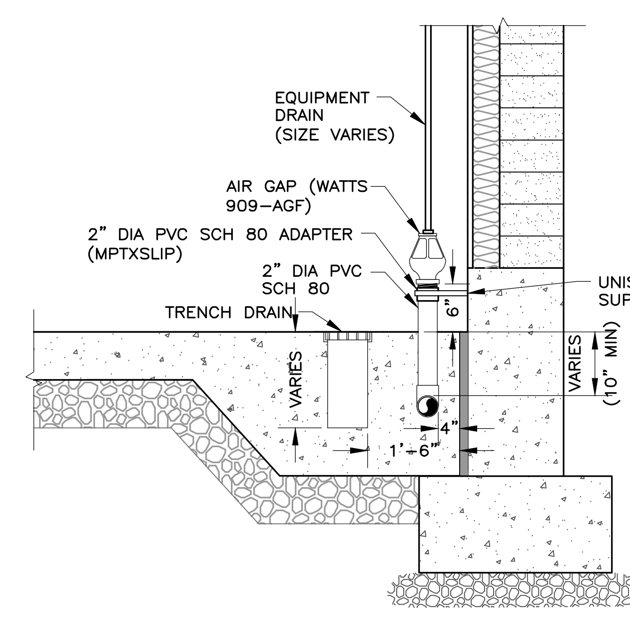
DETAIL NOTE:

THIS ONLY APPLIES TO AIR GAPS AWAY FROM STRUCTURE WALLS.

AIR GAP DRAIN

C	C	C
C-13	C-14	C-15
C	C	
C-16	C-17	

0 1 2
SCALE IN FEET



AIR GAP & TRENCH DRAINS

D	D
CF-1	CF-2

0 1 2
SCALE IN FEET

FILE NAME: PROJECTS\207 – CUWCD\27.200 – WELL HOUSE 7 & 16 & 17\CAD\C-21 TYPICAL DETAILS__R1.DWG
FILE DATE: 5.30.2023 16:39:00 (CAH)

HANSEN ALLEN & LUCE INC ENGINEERS

PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	BKC	2				
CHECKED	MEA	△	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

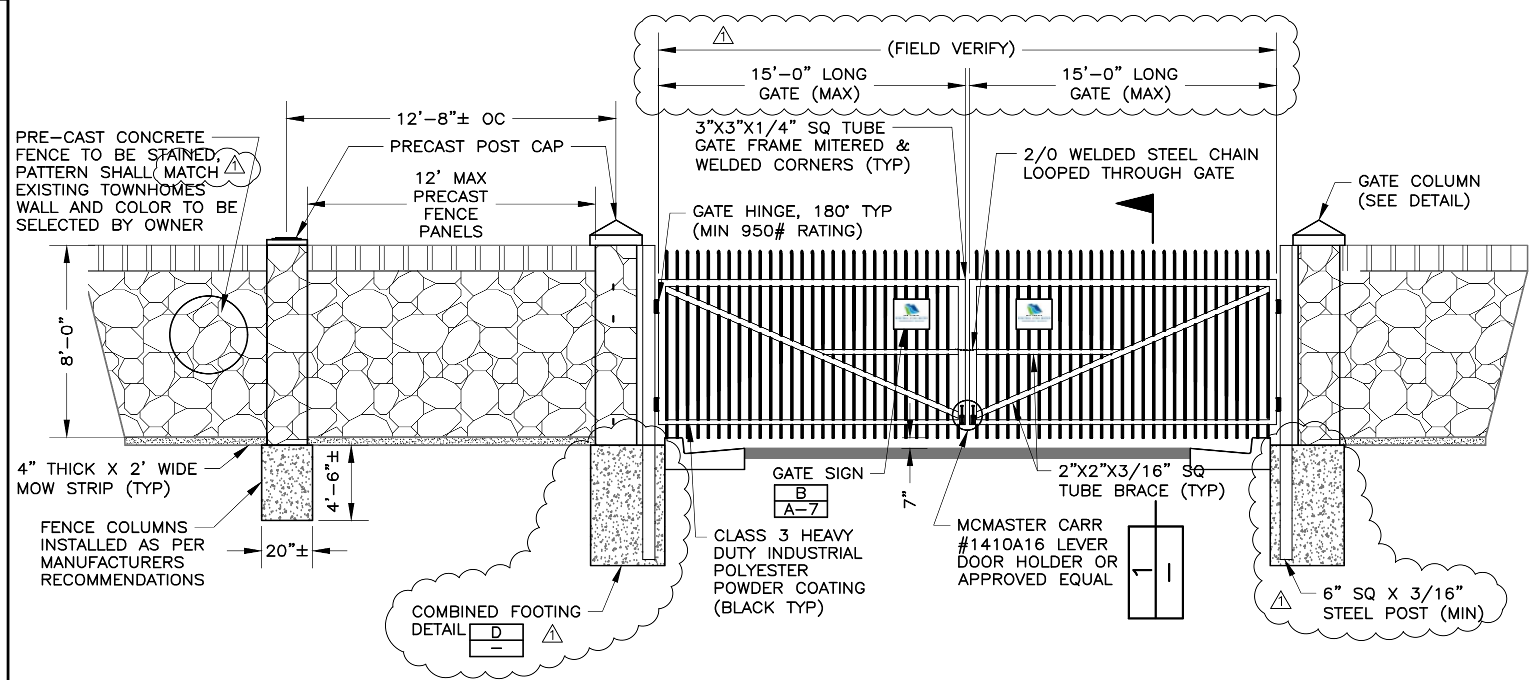
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
TYPICAL DETAILS

SHEET C-21

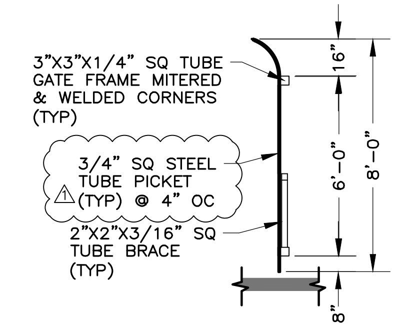
207.27.200

7/04



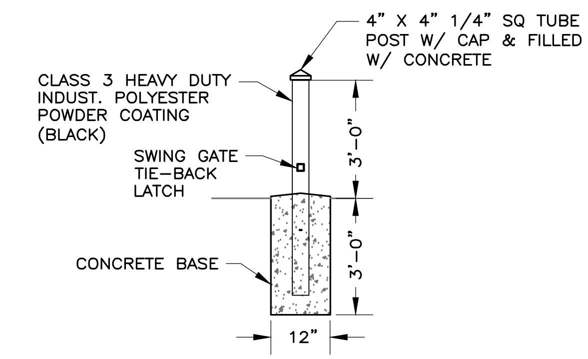
WALL & DOUBLE HUNG ORNAMENTAL IRON FENCE GATE DETAIL A/C-2 A/C-10

NTS

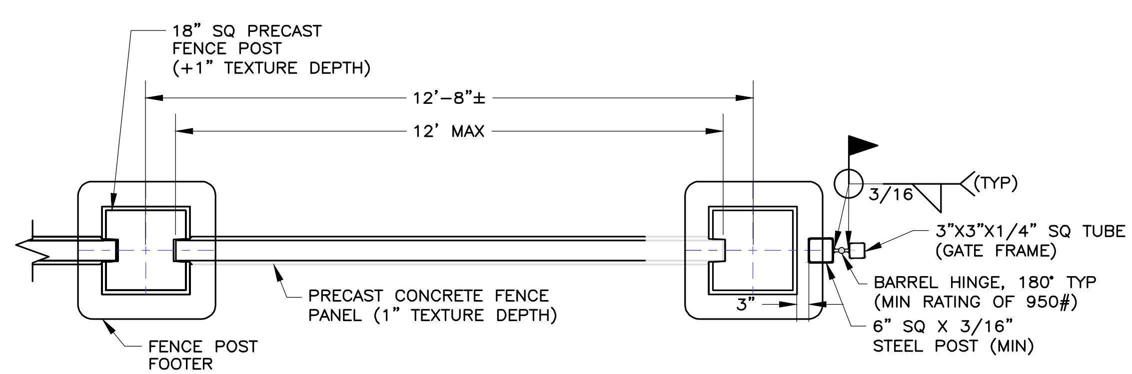


SECTION 1/—

NTS

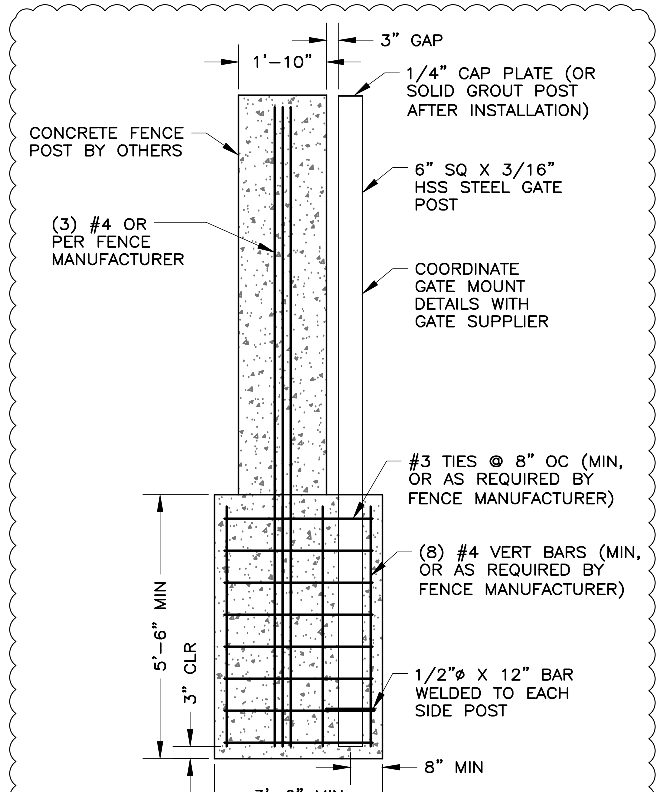


TYPICAL BOLLARD W/ TIE BACK B/C-10



FENCE AND GATE COLUMN PLAN VIEW C/—

NTS



COMBINED FOOTING DETAIL D/—

NTS

GENERAL SHEET NOTES:

1. COMMERCIAL CONCRETE FENCE SUPPLIER AND STYLE SHALL MATCH THE EXISTING TOWNHOMES PRECAST FENCE STYLE
2. PANEL AND COLUMN SHALL BE 5000 PSI (MIN) AND PROVIDED BY MANUFACTURER.
3. CAST IN PLACE FOOTING SHALL BE 3,000 PSI (MIN).
4. GROUT BETWEEN COLUMN AND FOOTING TO BE 2500 PSI.
5. CONCRETE FENCE SHALL BE DESIGNED BY QUALIFIED LICENSED STRUCTURAL ENGINEER. STRUCTURAL CALCULATIONS SHALL BE PROVIDED BY CONTRACTOR.
6. TIE BACK BOLLARD SHALL BE PROVIDED FOR EACH SIDE OF GATE.
7. GATES SHALL SWING IN OR OUT, (SITE DEPENDANT). TIE BACK BOLLARDS WILL BE PLACED AS NOTED IN SITE PLANS OR MCMASTER CARR #1410A16 (OR APPROVED EQUAL) AS REQUIRED.
8. GRAFFITI PROTECTION COATING SHALL BE APPLIED TO ALL EXPOSED VERTICAL CONCRETE SURFACES OF FENCE AS PER SECTION 09 90 00.

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-22 FENCING DETAILS__R1.DWG
FILE DATE: 6.1.2023 15:56:00 (CAH)

7/04

HANSEN ALLEN & LUCE INC ENGINEERS

No. 185750 MICHAEL M CHAMBERS 6/1/23 STATE OF UTAH — REGISTERED PROFESSIONAL ENGINEER

PROJECT ENGINEER

DESIGNED MMC	3				
DRAFTED CAH	2				
CHECKED MEA	1	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

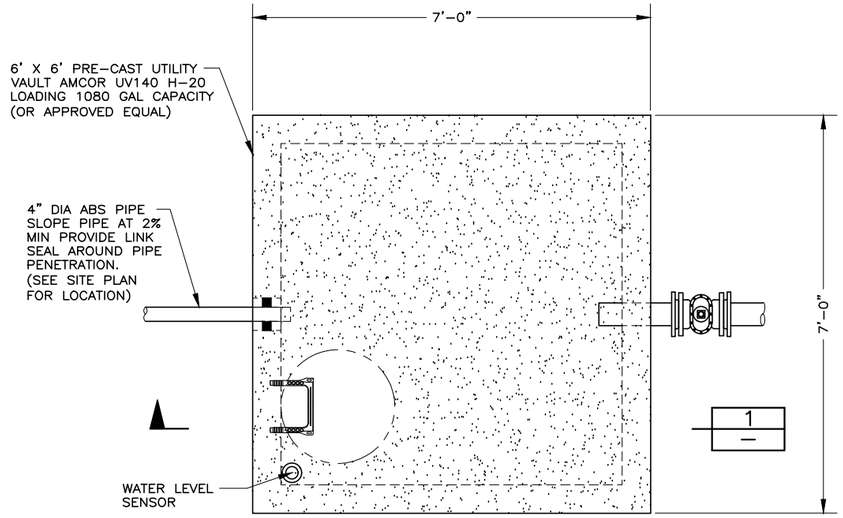
SCALE NOT TO SCALE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
PRE-CAST CONCRETE FENCE & GATE DETAILS

SHEET C-22

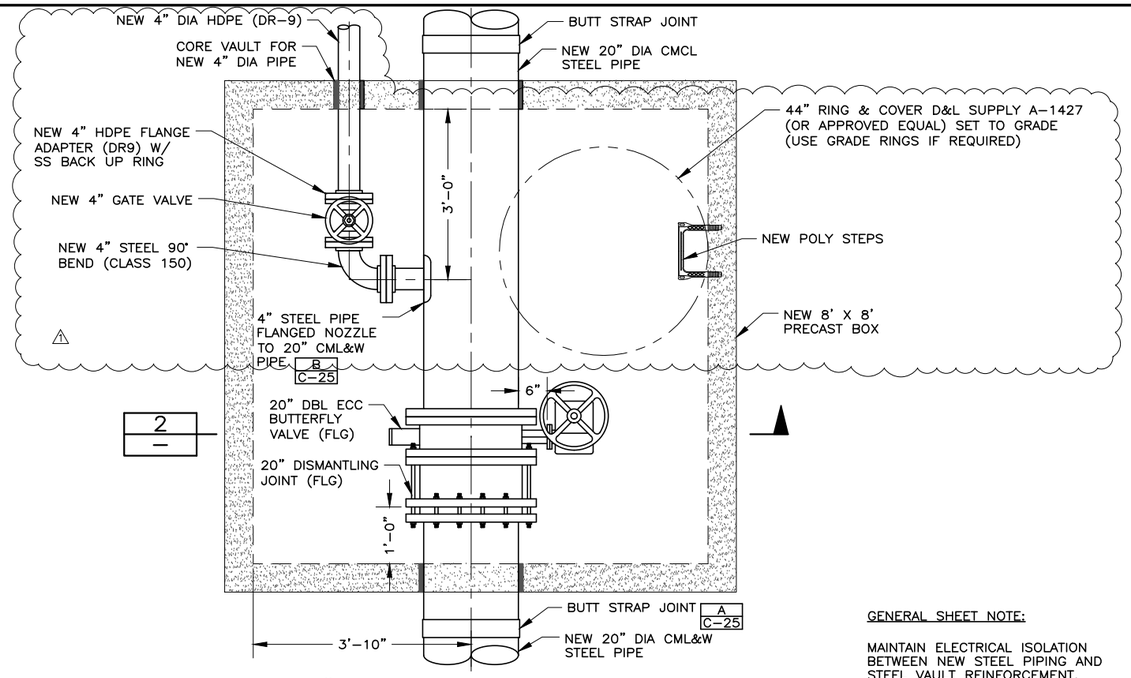
207.27.200



SUMP VAULT

A C-4	A C-8	A C-12	A C-13	A C-14	A C-15
A S-3	A S-4	A S-8	A S-9	A S-13	A S-14

0 .5 1 1.5 2
SCALE IN FEET

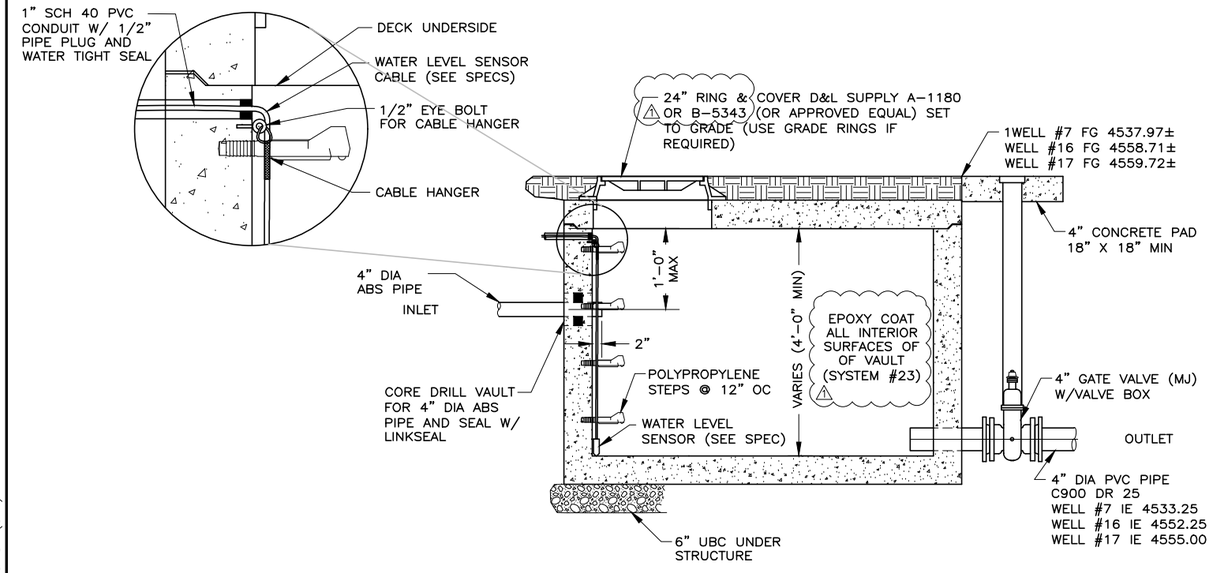


20" CONNECTION VAULT PLAN VIEW B C-8

0 .5 1 1.5 2
SCALE IN FEET

GENERAL SHEET NOTE:

MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND STEEL VAULT REINFORCEMENT.

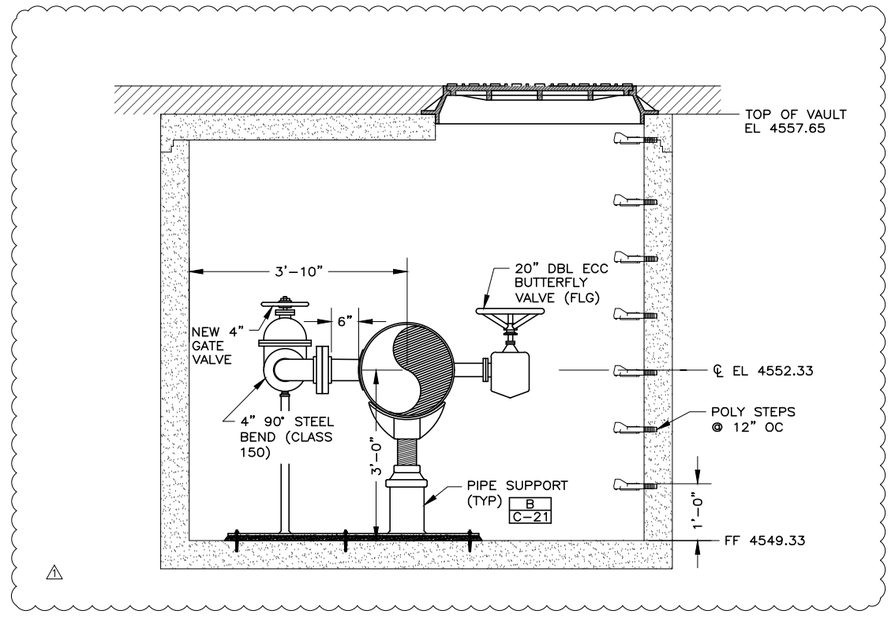


SECTION 1
—

0 .5 1 1.5 2
SCALE IN FEET

SECTION NOTES:

1. SEE DRAWINGS C-2, C-6 & C-10 SITE PLANS FOR PIPE, MANHOLE AND SENSOR LOCATIONS.
2. SEAL PIPE OPENINGS W/ LINKSEAL OR APPROVED EQUAL (TYP).



SECTION 2
—

0 .5 1 1.5 2
SCALE IN FEET

FILE NAME: PROJECTS\207.200 - CUWCD\207.200 - WELL HOUSE 7 & 16 & 17\CAD\C-24 VAULT DETAILS__R1.DWG
FILE DATE: 6.1.2023 06:45:18 (CAH)

HANSEN ALLEN & LUCE, Inc. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 188750 MICHAEL M. CHRISTENSEN STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MMC	3			
DRAFTED	BKC	2			
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	CAH MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE N.T.S.

CENTRAL UTAH WATER CONSERVANCY DISTRICT

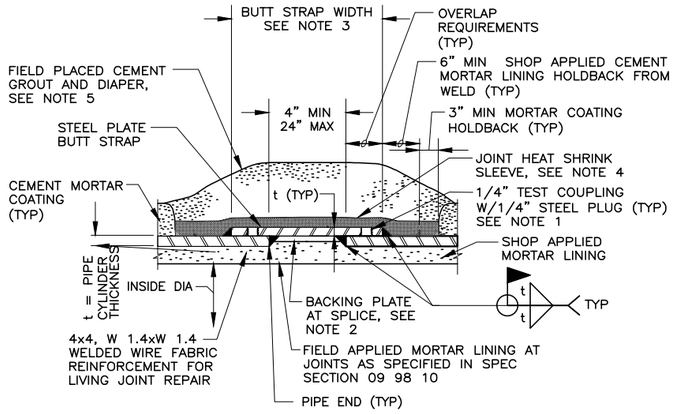
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
VAULT DETAILS

SHEET C-24

207.27.200

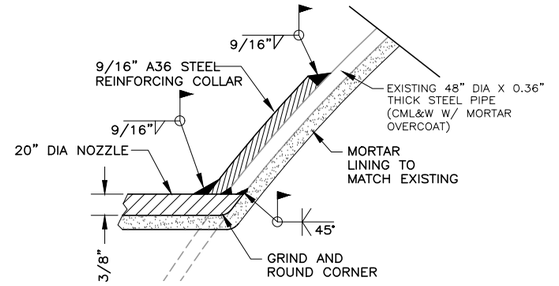
7/04

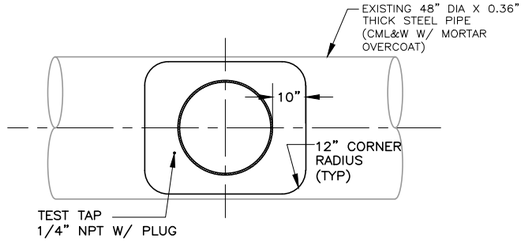


DETAIL NOTES:

1. CONTRACTOR SHALL CONDUCT AN AIR/SOAP SOLUTION LEAK TEST AT PSI AIR PRESSURE IN ACCORDANCE WITH SPEC SECTION 33 05 01.01 IN ADDITION TO DYE PENETRANT OR MAGNETIC PARTICLE TESTING. IF LEAKS ARE DETECTED, REPAIR AND RETEST THE WELDS UNTIL THERE ARE NO DEFECTS. PLUG HOLES WITH A THREADED OR WELDED PLUG AT COMPLETION OF TEST AND COAT AS SHOWN. TAP HOLES MAY BE ON INSIDE OR OUTSIDE OF JOINT.
2. FOR FIELD WELDING OF INDIVIDUAL BUTT STRAP PIECES TO EACH OTHER, SEE DETAIL C.
3. UNLESS OTHERWISE NOTED, BUTT STRAP WIDTH SHALL CONFORM TO THE LIMITATIONS SHOWN FOR PIPE END SEPARATION AND STEEL OVERLAP REQUIREMENTS.
4. HOLIDAY TEST THE HEAT SHRINK SLEEVE AFTER INSTALLATION AS SPECIFIED IN SECTION 09 90 10 OF THE TECHNICAL SPECIFICATIONS.

TYPICAL BUTT STRAP JOINT — NTS — A / C-24

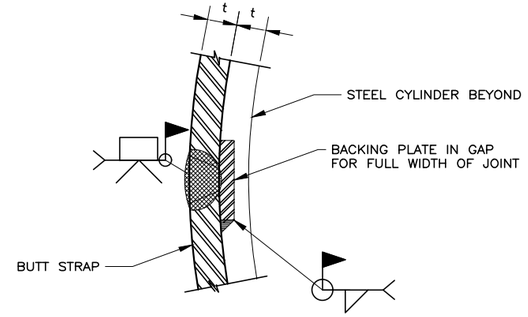




DETAIL NOTE:

TEST PRESSURE SHALL BE 300 PSI.

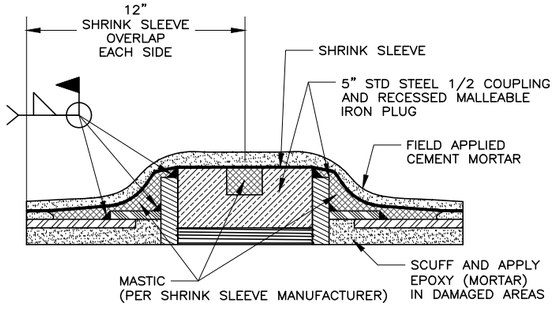
TYPICAL WELDED CONNECTION DETAIL — NTS — B / C-8 — B / C-24



DETAIL NOTES:

1. LININGS AND COATINGS NOT SHOWN FOR CLARITY.
2. BEVEL ENDS OF BACKING PLATE AT BUTT STRAP PRIOR TO WELDING OR BACK GOUGE AT CONTACT WITH ADJACENT CYLINDER PRIOR TO COMPLETING INSIDE FILLET WELD.

BUTT STRAP SPLICE — NTS — C / —



DETAIL NOTE:

HAND HOLES SHALL BE INSTALLED AT WELDED JOINTS FOR ACCESS TO APPLY LINING.

HAND HOLE DETAIL — NTS — D / —

REGISTERED PROFESSIONAL ENGINEER No. 288750 MICHAEL M. CONDIOTTY STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MMC	3					
DRAFTED	BKC	2					
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

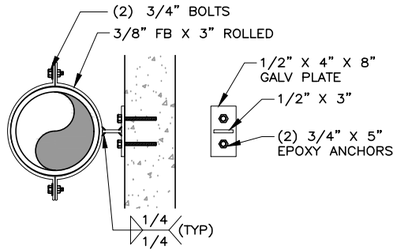
PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
TYPICAL STEEL PIPE DETAILS

SHEET C-25

207.27.200

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-25 TYP STEEL PIPE DETAILS__R1.DWG
FILE DATE: 5.31.2023 15:00:01 (CAH)

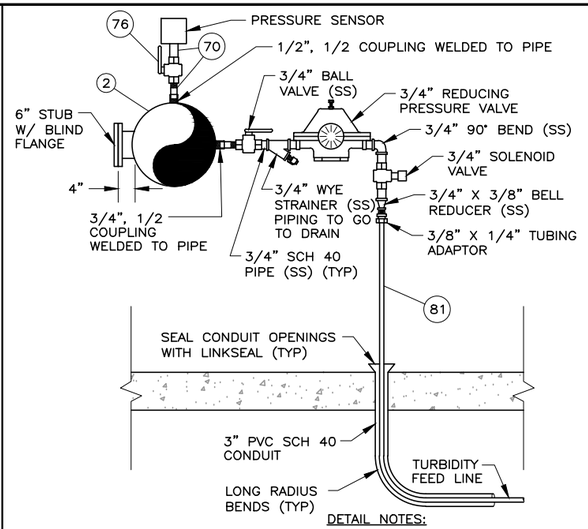
7/04



DETAIL NOTE:

HOT DIP GALVANIZE AFTER FABRICATION.

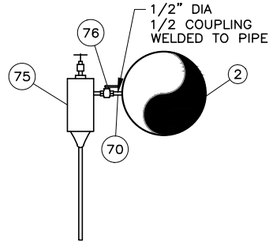
STABILIZATION BRACKET NTS — A / C-16



DETAIL NOTES:

1. ALL FITTINGS TO BE STAINLESS STEEL UNLESS OTHERWISE NOTED.
2. ALL 3/4" PIPE & FITTINGS TO BE THREADED.
3. SEE SHEET C-18 FOR VALVE & FITTING SCHEDULE.

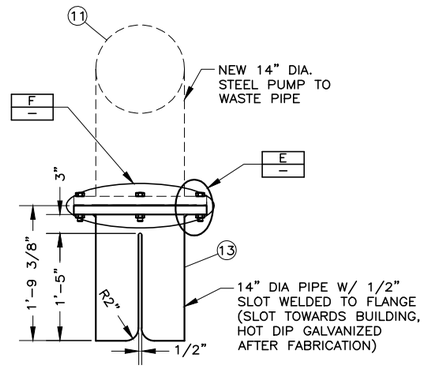
TURBIDITY FEED DETAIL NTS — B / C-13; B / C-14; B / C-15; B / C-16; B / C-17



DETAIL NOTES:

1. ALL FITTINGS TO BE STAINLESS STEEL UNLESS OTHERWISE NOTED.
2. ALL 1/2" PIPE & FITTINGS TO BE THREADED.
3. SEE SHEET C-18 FOR VALVE & FITTING SCHEDULE.

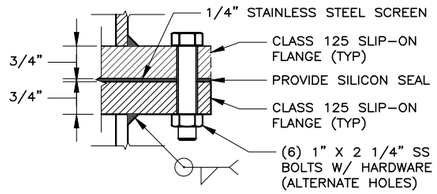
SAND FILTER DETAIL NTS — C / C-13; C / C-14; C / C-15



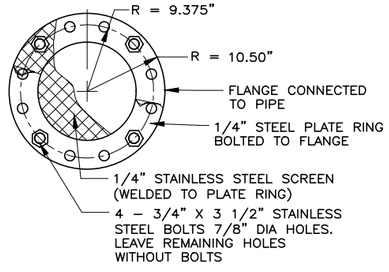
DETAIL NOTE:

DETAIL IS ALSO APPLICABLE TO 14" DIA SURGE TANK BLOW OFF.

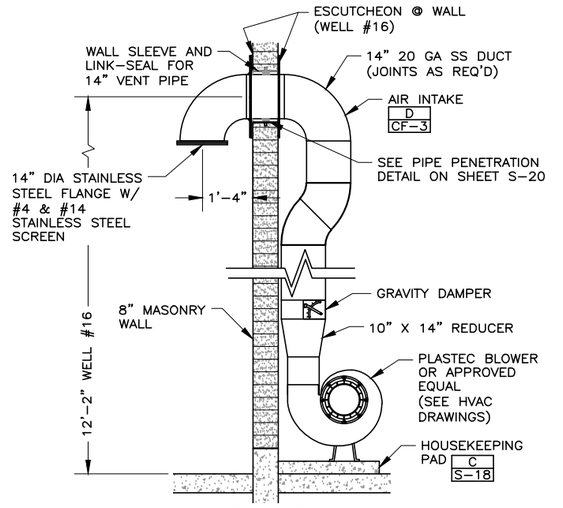
OUTLET DISCHARGE NTS — D / C-16; D / C-27 ⚠



DETAIL — E / — (NTS)



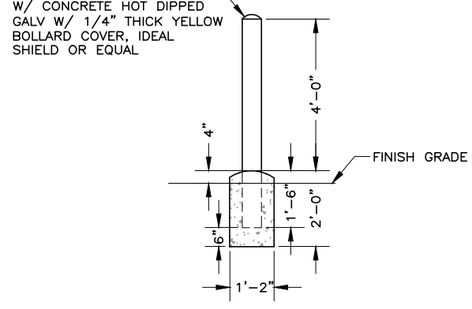
SCREENED OUTLET DETAIL NTS — F / —



DETAIL NOTE:

EXHAUST AND INLET VENT SHALL BE MADE FROM STAINLESS STEEL DUCT. TAPE AND MASTIC REQUIRED ON ALL JOINTS AND PENETRATIONS EXCEPT DUCT TO FAN. DUCT TO FAN SHALL USE STAINLESS STEEL ADJUSTABLE BAND.

EXHAUST FAN DETAIL NTS — G / C-14; G / CF-3



TYPICAL BOLLARD NTS — H / A-2; H / C-2; H / C-6

FILE NAME: PROJECTS\207 — CUWCD\27.200 – WELL HOUSE 7 & 16 & 17\CAD\C-26 MISCELLANEOUS DETAILS__R1.DWG
FILE DATE: 6.2.2023 09:36:15 (JRB)

HANSEN ALLEN & LUCE ENGINEERS

LICENSED PROFESSIONAL ENGINEER — No. 189750 — MICHAEL M. CHRISTENSEN — STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MMC	3			
DRAFTED	BKC	2			
CHECKED	MEA	⚠ 1	06/01/23	ADDENDUM NO. 1	CAH MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

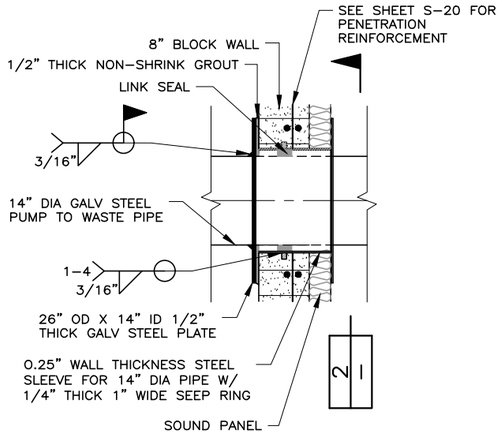
CENTRAL UTAH WATER CONSERVANCY DISTRICT

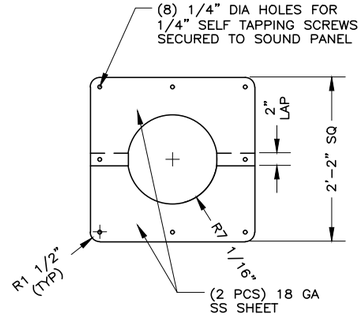
PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
MISCELLANEOUS DETAILS – I

SHEET C-26

207.27.200

7/04

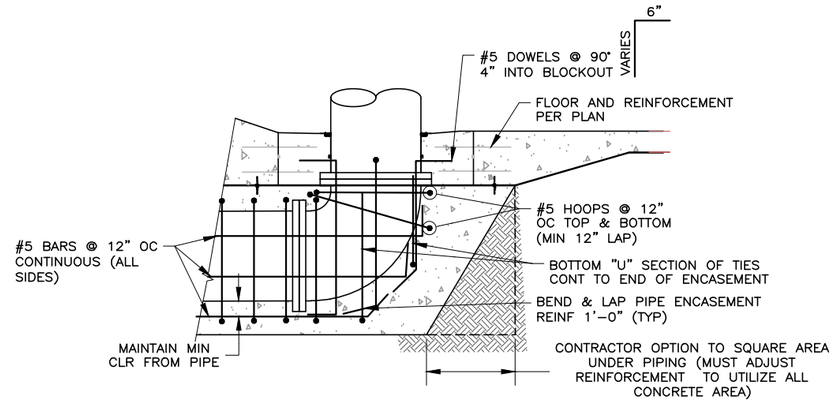




SECTION 2 / NTS — —

PUMP TO WASTE PIPE PENETRATION

NTS — A / C-16

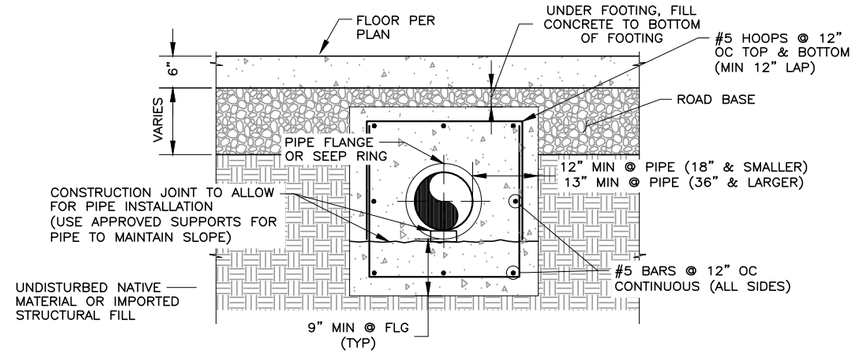


DETAIL NOTE:

MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND CONCRETE ENCASEMENT REINFORCEMENT.

TYPICAL PIPE REINFORCEMENT ENCASEMENT SECTION @ BEND

NTS — ⚠ C / — | C / C-16 | C / C17

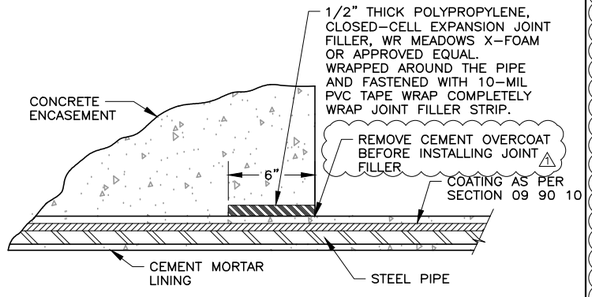


DETAIL NOTE:

MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND CONCRETE ENCASEMENT REINFORCEMENT.

TYPICAL PIPE ENCASEMENT SECTION

NTS — ⚠ B / — | B / C-16 | B / C-17

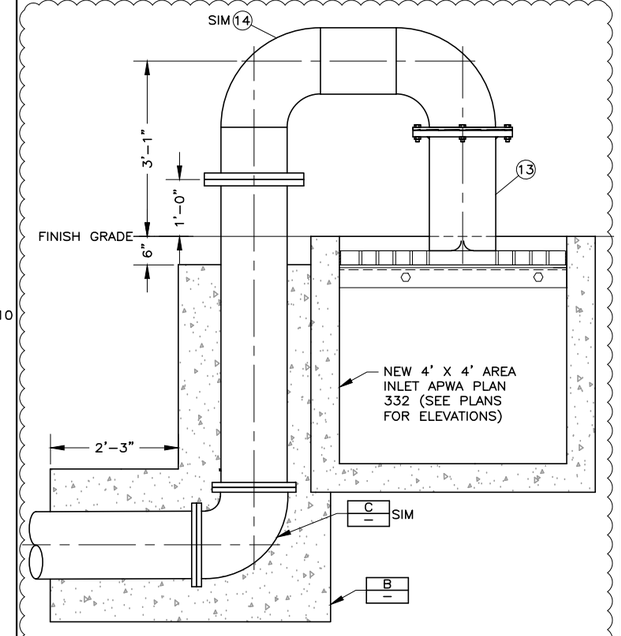


DETAIL NOTE:

MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND CONCRETE ENCASEMENT REINFORCEMENT.

END OF ENCASEMENT

NTS — D / C-16



⚠ SURGE TANK RETURN FLOW

NTS — E / C-4 | E / C-8

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\C-27 MISCELLANEOUS DETAILS___R1.DWG
FILE DATE: 6.1.2023 15:16:55 (CAH)

HANSEN ALLEN & LUCE ENGINEERS

REGISTERED PROFESSIONAL ENGINEER No. 188750 MICHAEL M. CHABRIES STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	CAH	2				
CHECKED	MEA	⚠ 1	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

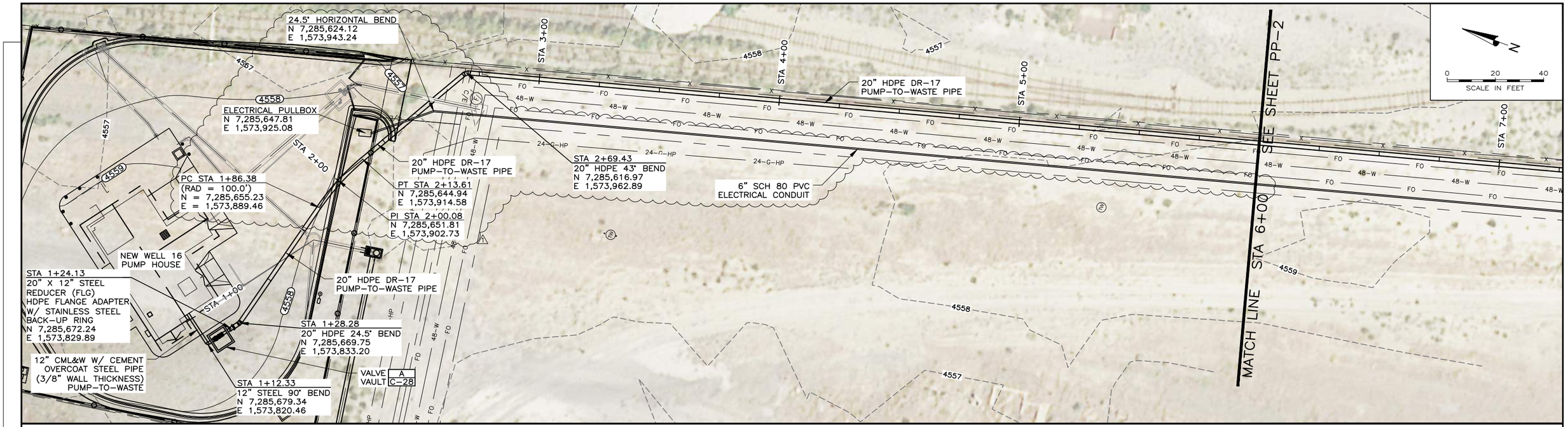
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CIVIL
MISCELLANEOUS DETAILS – II

SHEET C-27

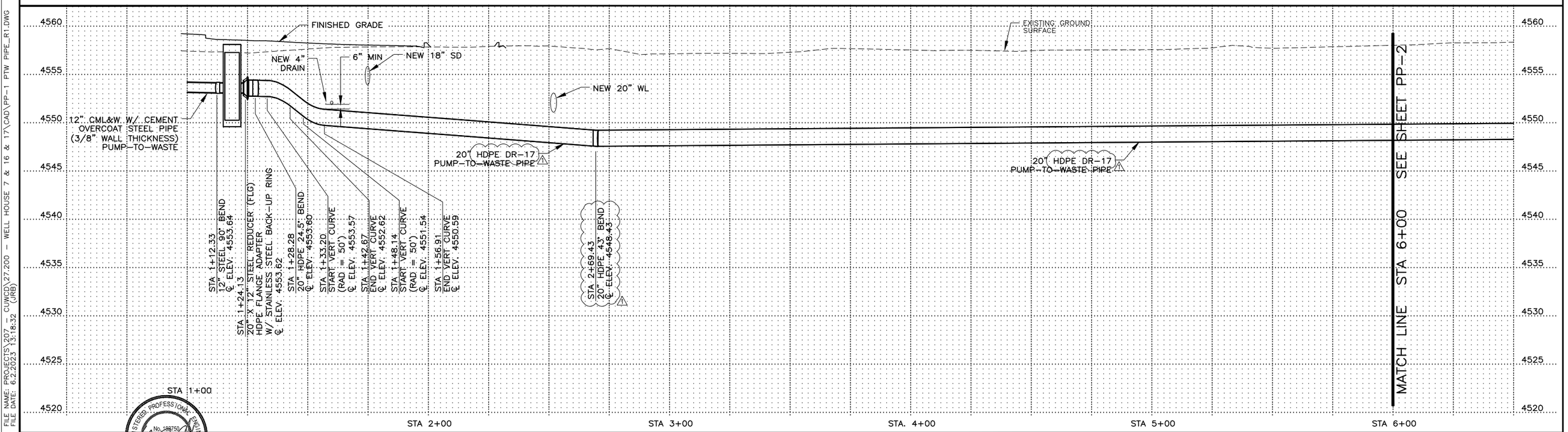
207.27.200

7/04



NOTES:

1. TEST PRESSURE FOR PIPE SHALL BE 100 PSI.



FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\PP-1 PTW PIPE_R1.DWG
FILE DATE: 6.2.2023 13:18:32 (JRB)

HANSEN ALLEN & LUCE ENGINEERS

PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

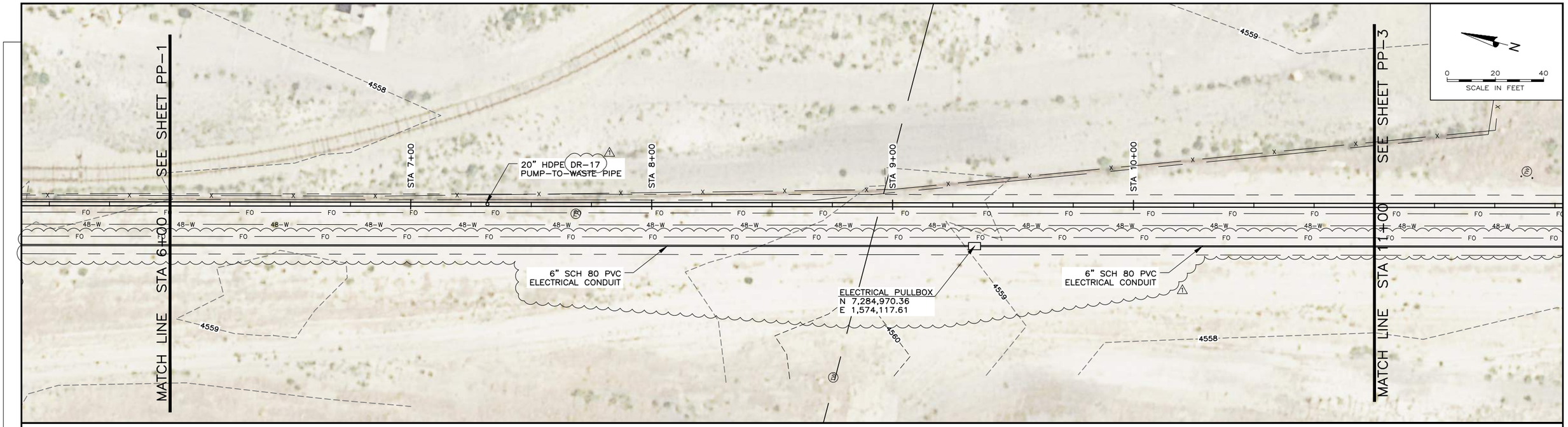
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
PLAN & PROFILE – PUMP-TO-WASTE
STA 1+00 TO STA 6+00

SHEET PP-1

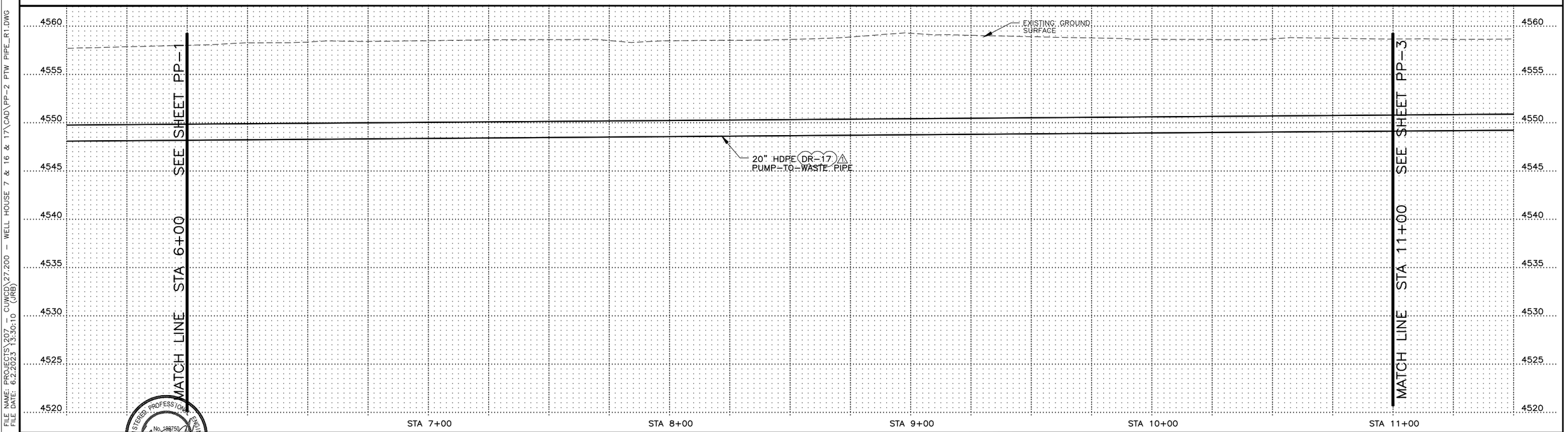
207.27.200

7/04



NOTES:

1. TEST PRESSURE FOR PIPE SHALL BE 100 PSI.



FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\PP-2 PTW PIPE_R1.DWG
FILE DATE: 6.2.2023 13:30:10 (JRB)

HANSEN ALLEN & LUCE ENGINEERS

JAMES STEBER, PROFESSIONAL ENGINEER, No. 188750, MECHANICAL, CHANNING E. WILCOX, STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

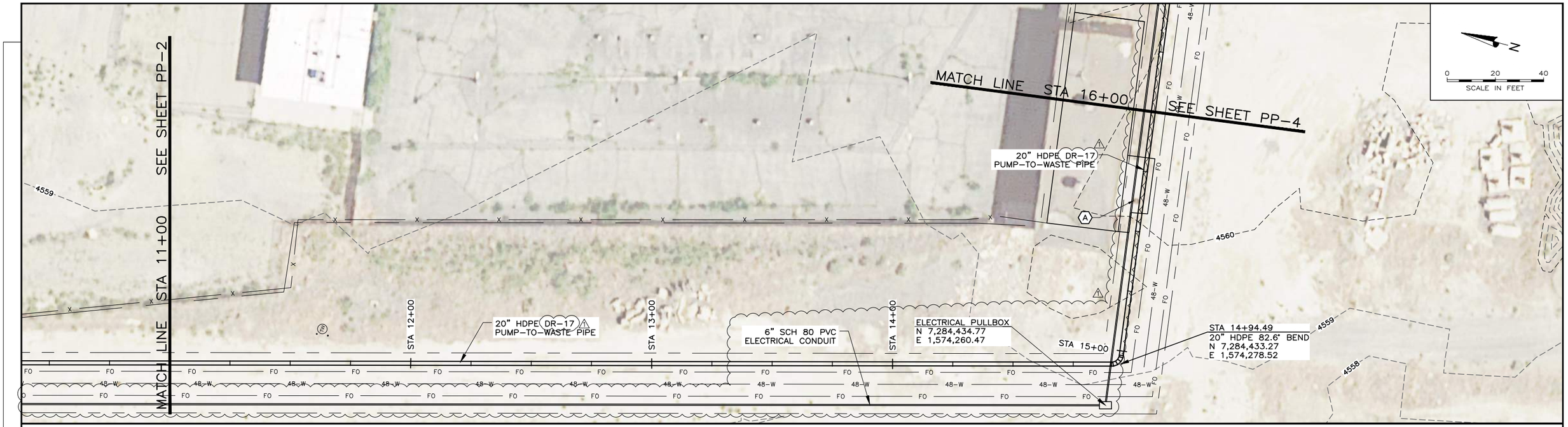
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
PLAN & PROFILE – PUMP-TO-WASTE
STA 6+00 TO STA 11+00

SHEET PP-2

207.27.200

7/04

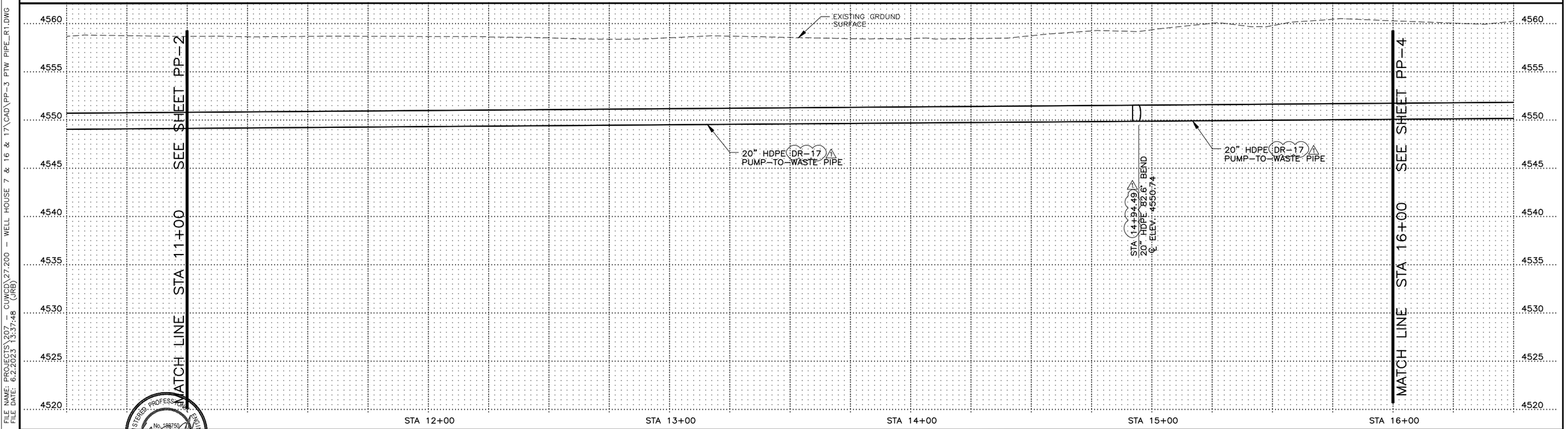


KEY NOTES

(A) DEMOLISH EXSITING CONCRETE STUCTURE AS NEEDED TO INSTALL NEW PIPE AND DISPOSE OF MATERIAL OFFSITE AT AN APPROVED FACILITY.

NOTES:

1. TEST PRESSURE FOR PIPE SHALL BE 100 PSI.



FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\PP-3 PTW PIPE_R1.DWG
FILE DATE: 6.2.2023 13:37:48 (JRB)

HANSEN ALLEN & LUCE ENGINEERS

LICENSED PROFESSIONAL ENGINEER — No. 188750 — MICHAEL E. ALLEN — STATE OF UTAH
PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: AS SHOWN

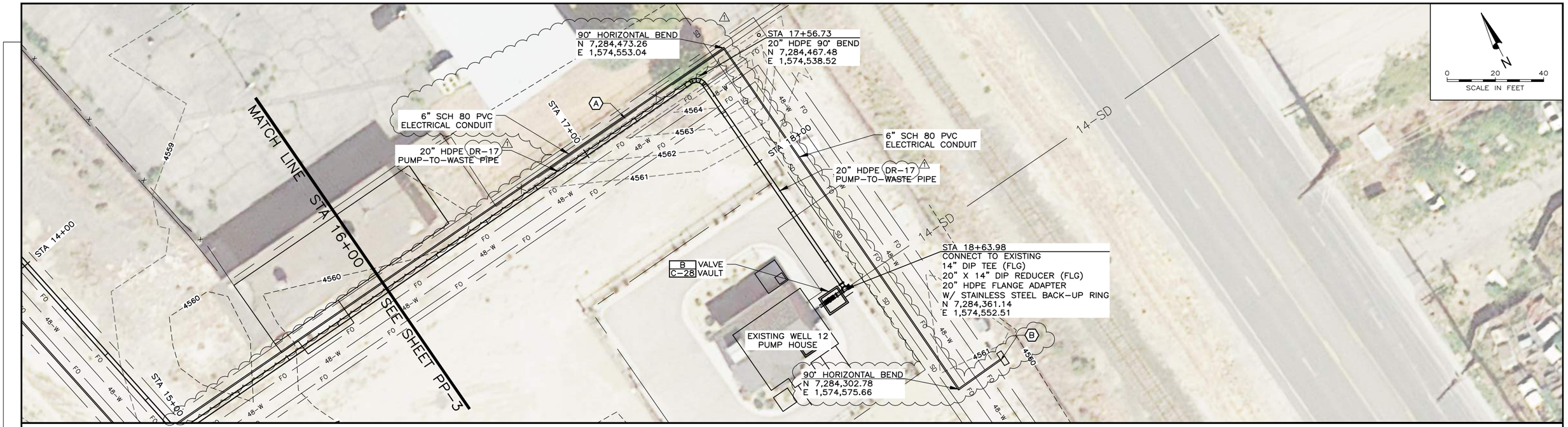
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
PLAN & PROFILE – PUMP-TO-WASTE
STA 11+00 TO STA 16+00

SHEET PP-3
207.27.200

7/04



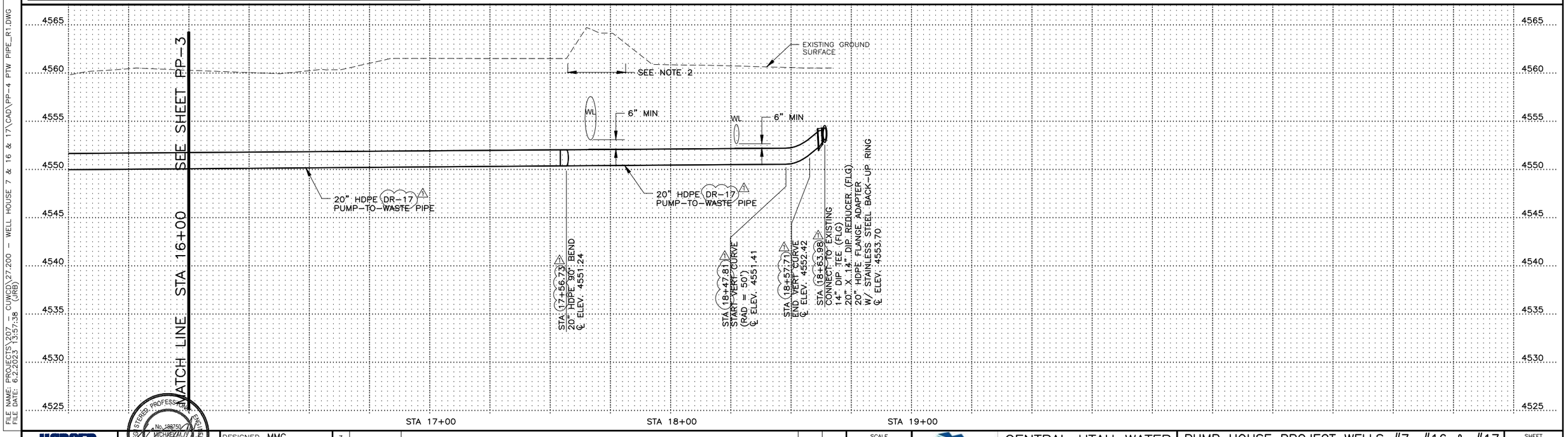
KEY NOTES

(A) REMOVE AND REPLACE EXISTING FENCE.

(B) CONNECT TO EXISTING ELECTRICAL BOX.

NOTES:

1. TEST PRESSURE FOR PIPE SHALL BE 100 PSI.
2. PIPE AND TRENCH ZONE BACKFILL TO A DISTANCE OF 10 FEET HORIZONTAL FROM EACH SIDE OF EXISTING 48" WATERLINE SHALL BE CLSM.



FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\PP-4 PTW PIPE_R1.DWG
FILE DATE: 6.2.2023 13:57:38 (JRB)

HANSEN ALLEN & LUCE ENGINEERS

PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	JRB	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	JRB	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

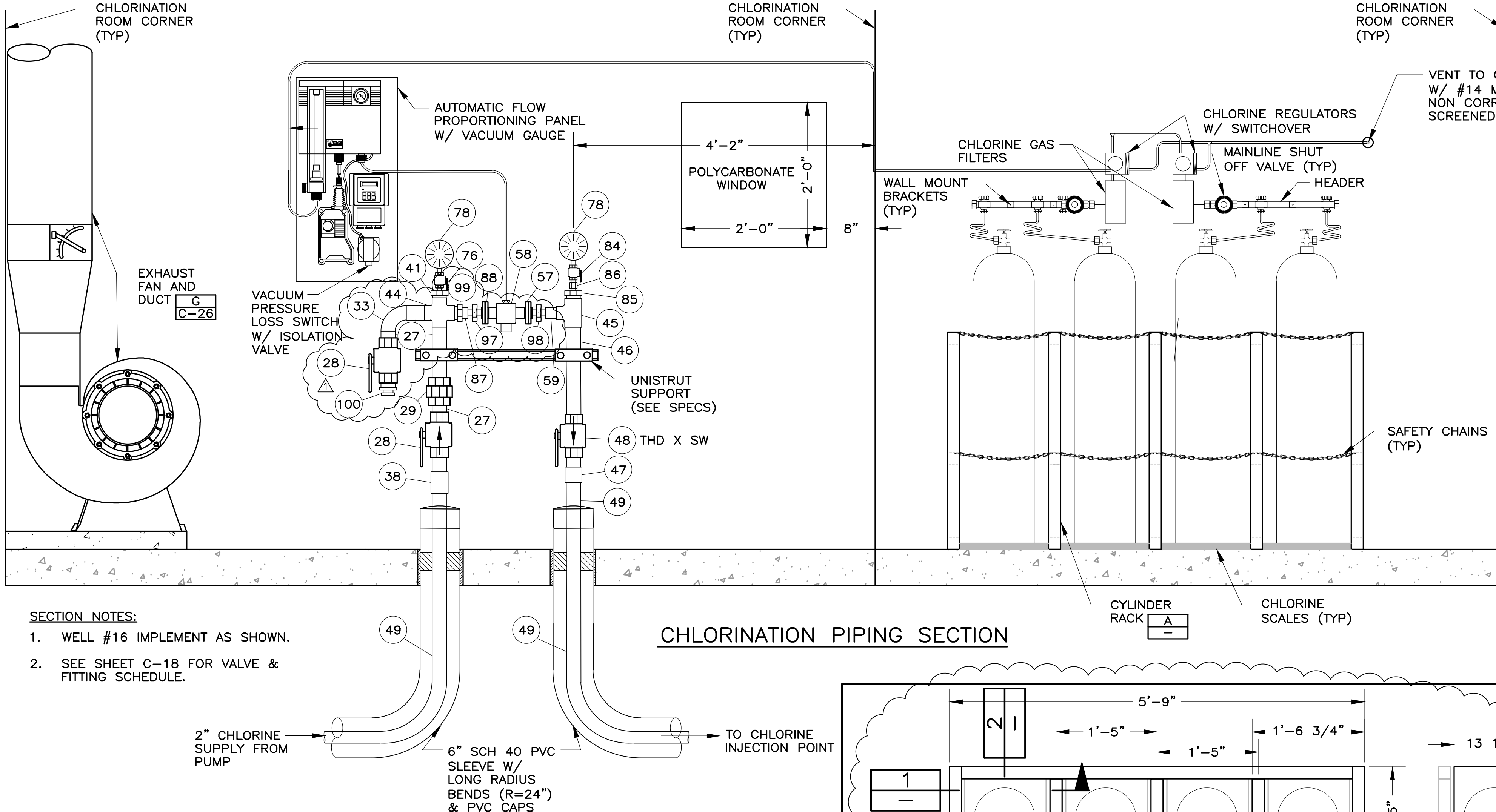
PUMP HOUSE PROJECT WELLS #7, #16 & #17
PLAN & PROFILE – PUMP-TO-WASTE
STA 16+00 TO STA 18+63.98 (1)

SHEET PP-4

207.27.200

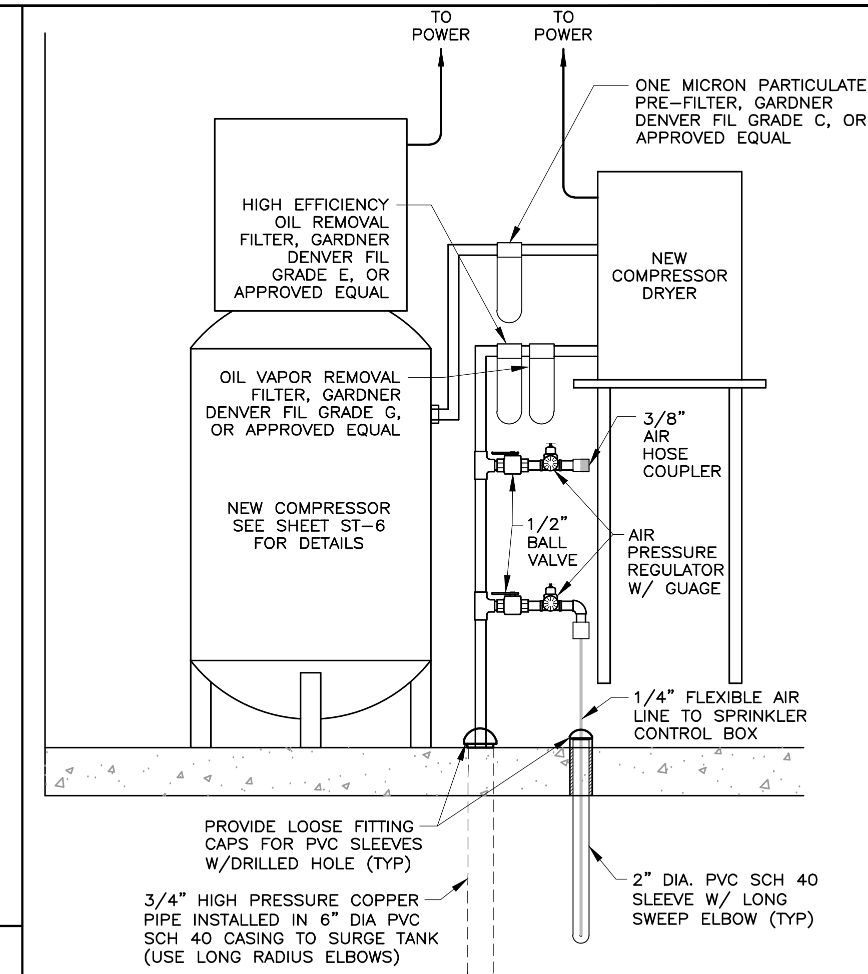
7/04

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\CF-3 CHLORINATION DETAILS__R1.DWG
FILE DATE: 6.1.2023 14:25:13 (CAH)

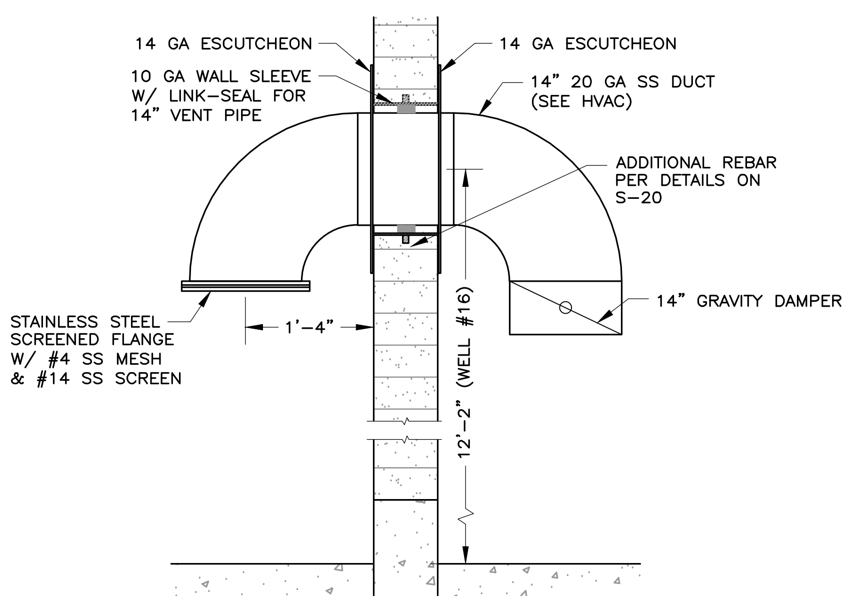


CHLORINATION PIPING SECTION

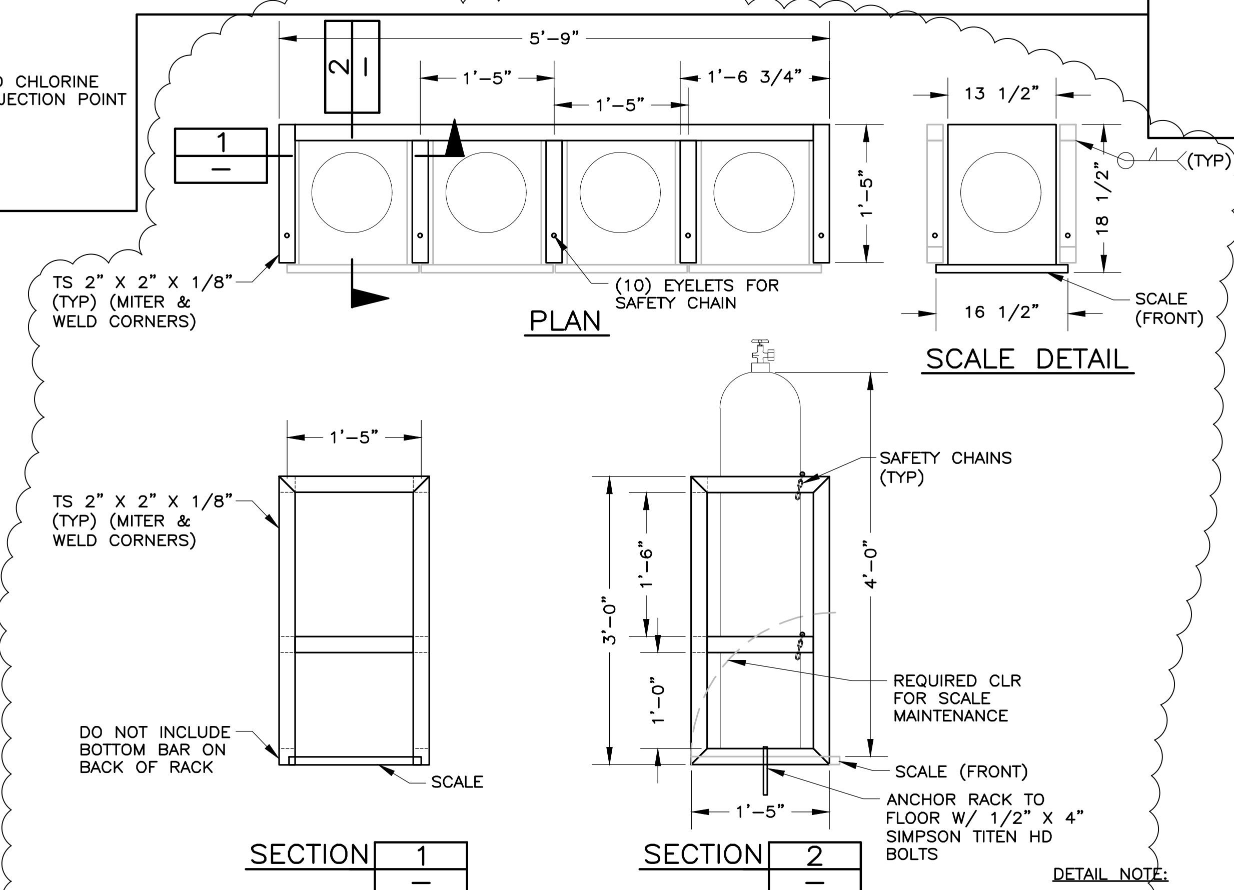
SECTION NOTES:
1. WELL #16 IMPLEMENT AS SHOWN.
2. SEE SHEET C-18 FOR VALVE & FITTING SCHEDULE.



COMPRESSOR C C-13 C C-14 C C-15

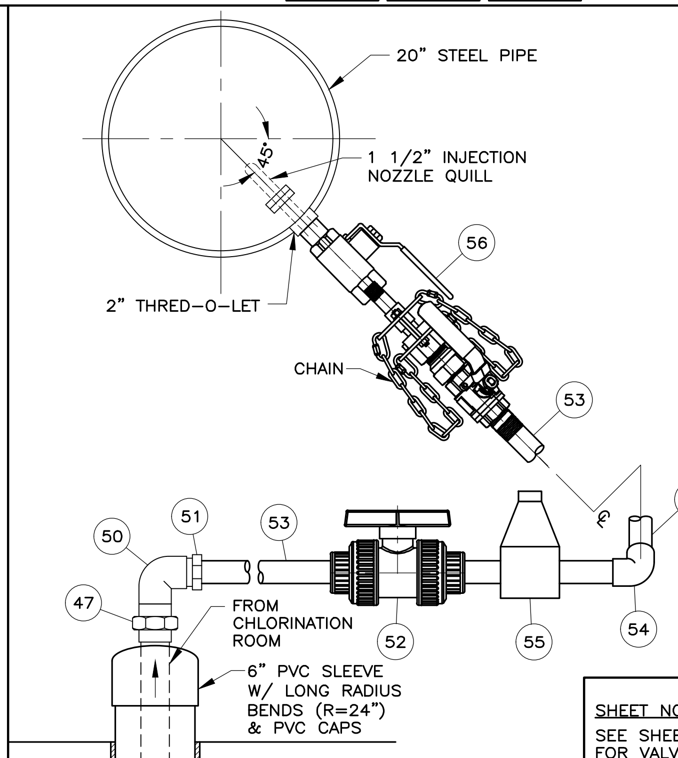


INTAKE VENT D C-14 D C-26



DETAIL NOTE:
CYLINDER RACK TO BE POWDER COATED (SAFETY YELLOW) AFTER FABRICATION.

CYLINDER RACK DETAIL A



INJECTION DETAIL B C-14

SHEET NOTE:
SEE SHEET C-18 FOR VALVE & FITTING SCHEDULE.

HANSEN ALLEN & LUCE INC ENGINEERS

PROFESSIONAL ENGINEER No. 189750 MICHAEL A. CHAMBERS STATE OF UTAH

PROJECT ENGINEER

DESIGNED	MMC	3				
DRAFTED	BKC	2				
CHECKED	MEA	1	06/01/23	ADDENDUM NO. 1	CAH	MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NOT TO SCALE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
CHEMICAL FEED SYSTEM
WELL #16 CHLORINATION DETAILS

SHEET CF-3
207.27.200

7/04

GENERAL NOTES

ELECTRICAL CONTINUITY:

1. ALL JOINTS OF METALLIC PIPE SHALL BE BONDED FOR ELECTRICAL CONTINUITY, EXCEPT WELDED OR INSULATED JOINTS.
2. SEE SPECIFICATION FOR QUANTITY OF JOINT BONDS REQUIRED BY PIPE DIAMETER.
3. STEEL OR DUCTILE IRON PUSH-ON, MECHANICAL, AND RESTRAINED JOINTS SHALL BE BONDED AS SHOWN IN DETAIL 1 OR DETAIL 4, SHEET CP-1.
4. FLANGED JOINTS SHALL BE BONDED AS SHOWN IN DETAIL 2, SHEET CP-1.
5. ALL JOINT BOND CONNECTIONS TO PIPE SHALL BE EXOTHERMIC WELDED.
6. ANY BOND CONNECTION USING BOLTED, MECHANICAL, COMPRESSION, OR SIMILAR TYPE CONNECTIONS WILL NOT BE PERMITTED.

TEST STATIONS:

1. FOR TEST STATION STYLE AND TYPE, SEE SCHEDULE DWG CP-1.
2. FOR TEST STATION TYPE T AND A SEE DETAILS 1 OR 2 , SHEET CP-2.
3. ALL TEST WIRE CONNECTIONS TO PIPE SHALL BE AN EXOTHERMIC WELDED, SEE DETAIL 4, SHEET CP-2.
4. PROVIDE SUFFICIENT WIRE TO ALLOW FOR PROPER TERMINATION IN TEST STATIONS AND FOR EXTENSION OF TERMINAL BOARDS A MINIMUM OF 18-INCHES FROM FLUSH MOUNT TEST STATIONS.
5. USE DISTRICT STANDARD COLOR CODE AS SHOWN ON DETAILS AND AS FOLLOWS:
   WHITE - DISTRICT PIPELINE
   GREEN - UNPROTECTED PIPELINE
   BLACK - ANODES
   YELLOW - REFERENCE ELECTRODE
6. ALL WIRES TO BE INSTALLED SPLICE FREE.

ELECTRICAL ISOLATION:

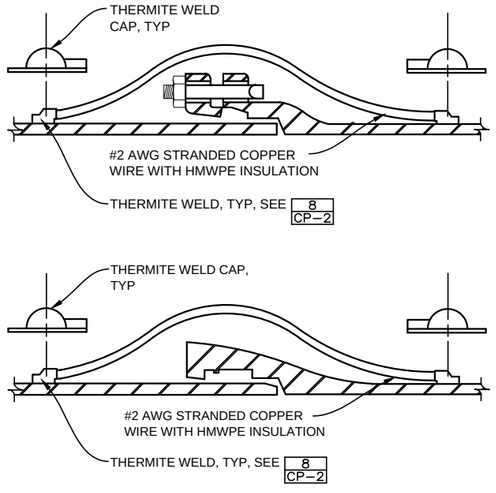
1. PROVIDE INSULATING JOINTS IN PIPING WHERE INDICATED ON DRAWINGS AND AS SHOWN IN DETAIL 2, SHEET CP-3.
2. TEST ALL INSULATING JOINTS FOR ELECTRICAL ISOLATION AS SPECIFIED IN SECTION 26 42 00.
3. FOR WELL DISCHARGE HEAD AND WELL PUMP COLUMN ELECTRICAL ISOLATION, SEE DETAILS 1 AND 4, SHEET CP-3.
4. CONTRACTOR TO TEST WELL HEAD AND WELL PUMP COLUMN ISOLATION AS SPECIFIED IN SECTION 26 42 00.
5. MAINTAIN ELECTRICAL ISOLATION BETWEEN NEW STEEL PIPING AND STEEL VAULT REINFORCEMENT.

GALVANIC ANODE CATHODIC PROTECTION:

1. SEE TEST STATION SCHEDULE, SHEET CP-1, FOR TYPE A TEST STATION LOCATIONS FOR GALVANIC ANODE CATHODIC PROTECTION.

TEST STATION SCHEDULE

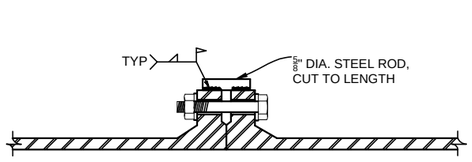
TEST STA. NO.	DRAWING	TYPE	STYLE	ANODE QUANTITY, WEIGHT & TYPE	PIPES TO BE CONNECTED
PUMP HOUSE # 7					
TS-1	C-4	T	POST	-	20" STEEL PIPE INSIDE EXISTING VALVE VAULT
TS-2	C-4	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	20" STEEL PIPE OUTSIDE EXISTING VALVE VAULT
TS-3	C-4	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	20" STEEL PIPE OUTSIDE NEW WELL PUMP HOUSE #7
TS-4	C-4	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	12" STEEL PIPE OUTSIDE TANK VAULT
TS-5	C-4	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	SURGE TANK, ANODES TO BE PLACED ON EACH SIDE OF SURGE TANK
PUMP HOUSE # 16					
TS-6	C-8	T	POST	-	EXISTING 48" STEEL PIPE
TS-7	C-8	A	FLUSH	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	20" STEEL PIPE
TS-8	C-8	A	POST	ONE (1) - 60 LB HIGH POTENTIAL MAGNESIUM	4" DIA STEEL COLD WATER SUPPLY LINE FROM 20" DIA STEEL PIPE
TS-9	C-8	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	20" STEEL PIPE OUTSIDE NEW WELL PUMP HOUSE #16
TS-10	C-8	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	12" STEEL PIPE OUTSIDE SURGE TANK VAULT
TS-11	C-8	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	SURGE TANK, ANODES TO BE PLACED ON EACH SIDE OF SURGE TANK
PUMP HOUSE # 17					
~~TS-12~~ ⚠	~~C-12~~	~~T~~	~~POST~~	~~-~~	~~NEW 20" VINEYARD CONNECTOR WATERLINE~~
~~TS-13~~	~~C-12~~	~~A~~	~~POST~~	~~TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM~~	~~20" STEEL PIPE CONNECTION TO NEW 20" VINEYARD CONNECTOR WATERLINE~~
TS-14	C-12	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	20" STEEL PIPE OUTSIDE NEW WELL PUMP HOUSE #17
TS-15	C-12	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	12" STEEL PIPE OUTSIDE SURGE TANK VAULT
TS-16	C-12	A	POST	TWO (2) - 60 LB HIGH POTENTIAL MAGNESIUM	SURGE TANK, ANODES TO BE PLACED ON EACH SIDE OF SURGE TANK



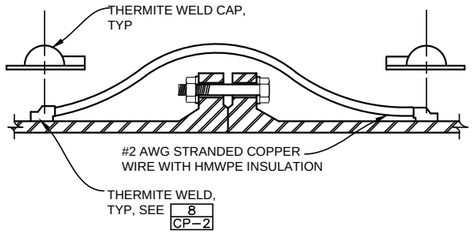
NOTES:

1. BOND SIMILAR FOR RESTRAINED AND OTHER DUCTILE IRON JOINTS.
2. INSTALL TWO BOND WIRES AT EACH JOINT, MINIMUM, SEE SPECS FOR QUANTITY REQUIRED FOR PIPE DIAMETER.
3. COAT THERMITE WELDS WITH THERMITE WELD CAP OR FAST CURE EPOXY AT CONTRACTOR'S OPTION

DUCTILE IRON JOINT BOND 1 — NTS



STEEL ROD BOND

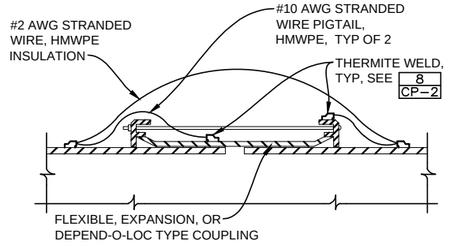


WIRE BOND

NOTES:

1. CONTRACTOR MAY INSTALL EITHER STEEL ROD OR WIRE BOND SHOWN, EXCEPT WHERE WELDING ON FLANGE IS NOT PERMITTED.
2. INSTALL TWO BONDS AT EACH JOINT, MINIMUM, SEE SPECS FOR QUANTITY REQUIRED FOR PIPE DIAMETER.
3. COAT STEEL ROD AND WELDS WITH FAST CURE EPOXY

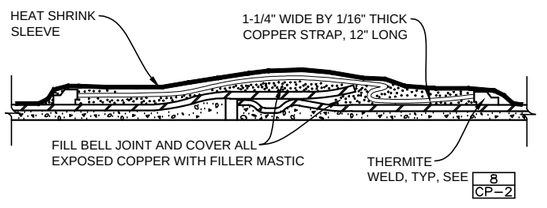
FLANGED JOINT BOND 2 — NTS



NOTES:

1. COUPLING JOINT SHOWN, SIMILAR FOR RESTRAINED JOINTS, DEPEND-O-LOC, FLANGED ADAPTERS, AND OTHER TYPE DISMANTLING JOINTS.
2. INSTALL TWO BOND WIRES AT EACH PIPE JOINT, MINIMUM, SEE SPECS FOR QUANTITY REQUIRED FOR PIPE DIAMETER.
3. SEE THERMITE WELD DETAIL FOR COATING REQUIREMENTS.

COUPLING JOINT BOND 3 — NTS



NOTES:

1. INSTALL TWO BOND WIRES AT EACH JOINT, MINIMUM, SEE SPECS FOR QUANTITY REQUIRED FOR PIPE DIAMETER.
2. PLACE BUTYL RUBBER FILLER MASTIC UNDER COPPER STRAP BOND BEFORE WELDING TO PIPE, FILLER MASTIC SHALL EXTEND A MINIMUM OF 1/2-INCH BEYOND EDGES OF BOND FOR SEALING WITH HEAT SHRINK SLEEVE.
3. JOINT BOND TO BE COVERED WITH HEAT SHRINK SLEEVE OR JOINT COATING AS SPECIFIED.

COATED STEEL STRAP JOINT BOND 4 — NTS

PROFESSIONAL ENGINEER No. 5043798 ERIK SCOTT LLEWELLYN STATE OF UTAH

CORROSION CONTROL TECHNOLOGIES, INC.

REGISTERED PROFESSIONAL ENGINEER No. 189750 MICHAEL E. ANDERSEN STATE OF UTAH — PROJECT ENGINEER

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED ESL	3					
DRAFTED CAH	2					
CHECKED MEA	⚠ 1	06/01/23	ADDENDUM NO. 1			
DATE MAY 2023	NO.	DATE	REVISIONS		BY	APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

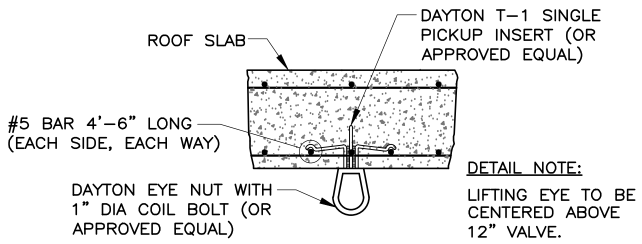
PUMP HOUSE PROJECT WELLS #7, #16 & #17
CATHODIC PROTECTION
SCHEDULES AND CONTINUITY DETAILS

SHEET CP–1

207.27.200

FILE NAME: PROJECTS\207 – CUWCD\27.200 – WELL HOUSE 7 & 16 & 17\CAD\CP–1 CATHODIC DESIGN 1.DWG
FILE DATE: 5.17.2023 15:26:49 (CAH)

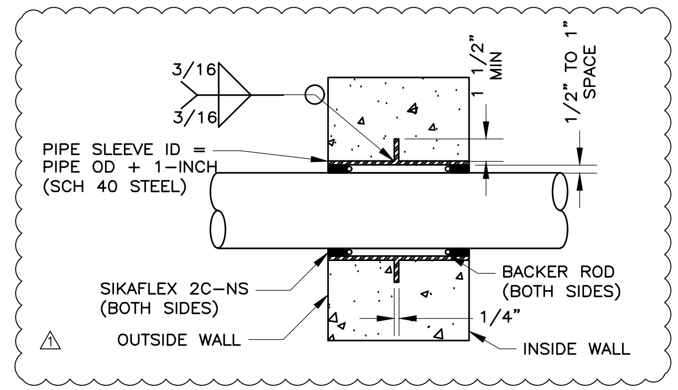
7/04



DETAIL NOTE:

LIFTING EYE TO BE CENTERED ABOVE 12" VALVE.

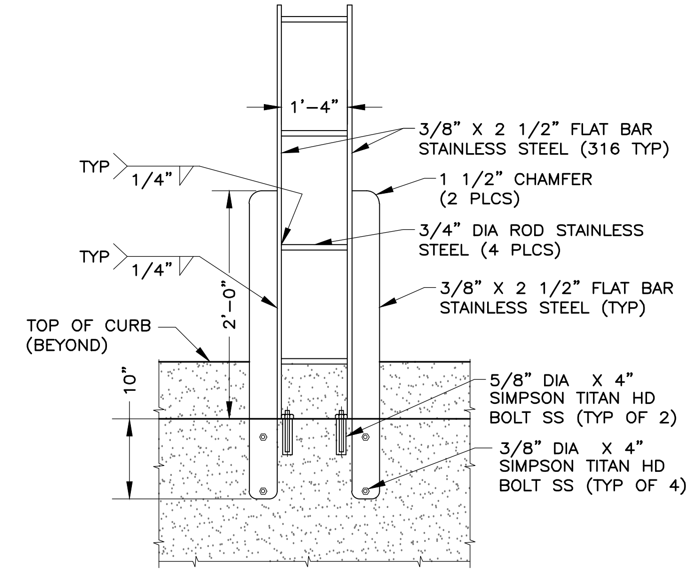
LIFTING EYE BOLT DETAIL | B / ST-1



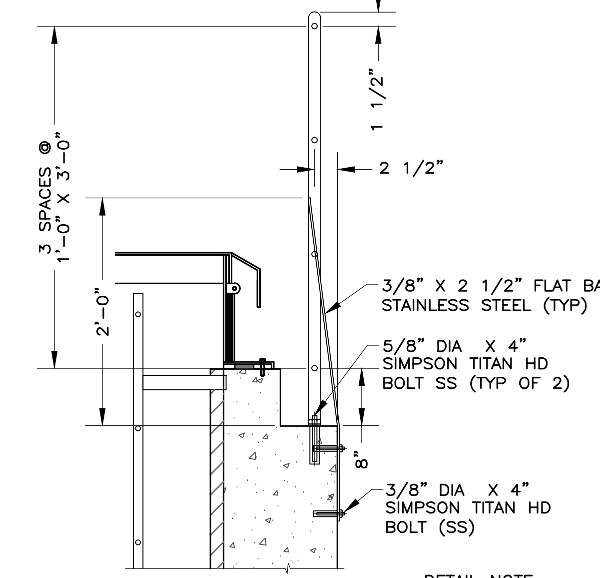
DETAIL NOTE:

SLEEVE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

2" PIPE SLEEVE DETAIL | C / ST-1



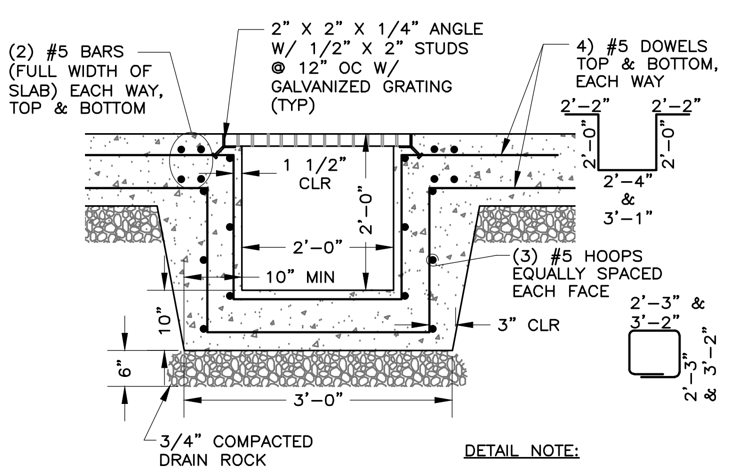
LADDER EXTENSION | D / ST-4



DETAIL NOTE:

SEE SECTION 2/ST-4 FOR REINFORCEMENT REQUIREMENTS

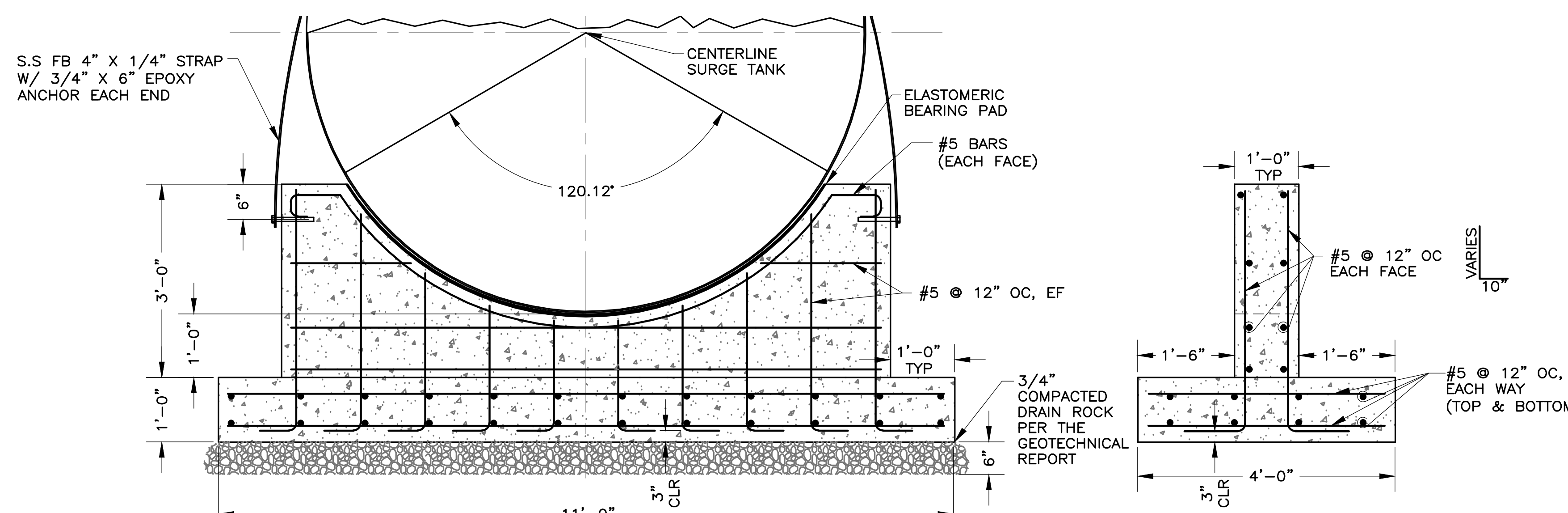
SECTION | 3 / ST-1



DETAIL NOTE:

IF DRAIN BOX NOT POURED MONOLITHICALLY, THEN 2X4 KEYWAYS WITH A 4" WATERSTOP IS REQUIRED AT ALL JOINTS.

DETAIL | E / ST-2



FRONT SECTION

END SECTION

SURGE TANK FOOTING | A / ST-3

FILE NAME: PROJECTS\207 - CUWCD\27.200 - WELL HOUSE 7 & 16 & 17\CAD\ST-5 MISCELLANEOUS DETAILS II__R1.DWG
FILE DATE: 6.1.2023 12:47:39 (CAH)

DESIGNED	MMC	3			
DRAFTED	CAH	2			
CHECKED	MEA RCC	△	06/01/23	ADDENDUM NO. 1	CAH MMC
DATE	MAY 2023	NO.	DATE	REVISIONS	BY APVD.

HANSEN ALLEN & LUCE INC ENGINEERS — PROJECT ENGINEER

SCALE: NOT TO SCALE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
SURGE TANK
MISCELLANEOUS DETAILS II

SHEET ST-5

207.27.200

7/04

CONDUIT/CONDUCTOR SCHEDULE
THHN, THWN, THWN-2

AMP RATING	DRAWING ID TAG.	CONDUCTOR QTY.*	CONDUCTOR SIZE	MIN. CONDUIT SIZE	EXCEPTIONS
20** 20+	212	2	#12	3/4"	
	312	3		3/4"	
	412	4		3/4"	
30** 30+	20	2	#10	3/4"	
	30	3		3/4"	
	40	4		3/4"	
40** 50+	28	2	#8	3/4"	
	38	3		3/4"	
	48	4		3/4"	
55** 65+	26	2	#6	3/4"	
	36	3		3/4"	
	46	4		3/4"	1"(C9)
70** 85+	24	2	#4	3/4"	1"(C2,C9)
	34	3		1"	3/4"(C4),1-1/4"(C9)
	44	4		1"	1-1/4"(C9)
95** 115+	22	2	#2	1"	
	32	3		1"	1-1/4"(C9)
	42	4		1-1/4"	
110** 130+	21	2	#1	1-1/4"	1"(C3,C4)
	31	3		1-1/4"	1"(C3)
	41	4		1-1/4"	1-1/2"(C2,C9,C10)
150	210	2	1/0	1-1/4"	
	310	3		1-1/4"	1-1/2"(C3,C9)
	410	4		1-1/2"	2"(C9)
175	220	2	2/0	1-1/4"	1-1/2"(C3,C4,C9)
	320	3		1-1/2"	
	420	4		2"	
200	230	2	3/0	1-1/2"	1-1/4(C4)
	330	3		1-1/2"	2"(C3,C9)
	430	4		2"	
230	240	2	4/0	1-1/2"	2"(C3)
	340	3		2"	
	440	4		2"	2-1/2"(C9)
255	225	2	250 KCMIL	2"	1-1/2"(C4)
	325	3		2"	2-1/2"(C1,C8)
	425	4		2-1/2"	2"(C4)
310	235	2	350 KCMIL	2"	2-1/2"(C9)
	335	3		2-1/2"	2"(C4)
	435	4		3"	2-1/2"(C1,C4)
380	250	2	500 KCMIL	2-1/2"	2"(C4)
	350	3		3"	2-1/2"(C1,C4)
	450	4		3"	3-1/2"(C9)
475	275	2	750 KCMIL	3"	
	375	3		3-1/2"	3"(C1,C7,C8)
	475	4		4"	3-1/2"(C1,C4,C8)

* CONDUCTOR QUANTITY DOES NOT INCLUDE GROUNDING CONDUCTORS. SEE EQUIPMENT GROUNDING CONDUCTORS FOR WIRE SIZES.

WHERE: C1 = ELECTRICAL METALLIC TUBING "**" = 60°C RATING
C2 = ELECTRICAL NON-METALLIC TUBING "+" = 75°C RATING
C3 = FLEXIBLE STEEL CONDUIT
C4 = INTERMEDIATE METALLIC CONDUIT
C7 = LIQUIDTIGHT FLEXIBLE METAL CONDUIT
C8 = RIGID METALLIC CONDUIT
C9 = PVC SCHEDULE 80 CONDUIT
C10 = PVC SCHEDULE 40 CONDUIT
"**" = RATED AMPACITY AT 60°C
"+" = RATED AMPACITY AT 75°C
USE 60°C CONDUCTOR RATING WHEN TERMINATION RATINGS ARE NOT PUBLISHED

I&C WIRE/CONDUIT TABLE

IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
A1	3/4"	1	#18TSP	1 ANALOG SIGNAL
A2	3/4"	2	#18TSP	2 ANALOG SIGNALS
A3	3/4"	3	#18TSP	3 ANALOG SIGNALS
A3	1"	4	#18TSP	4 ANALOG SIGNALS

IDENT.	CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION
D1	3/4"	2	#14	
D2	3/4"	3	#14	
D3	3/4"	4	#14	
D4	3/4"	5	#14	

TABLE VFD

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO VFD
3/4"	1	#14	_COMMON OUTPUT
	1	#14	_COMMON INPUT
	1	#14	VFD CALL RUN
	1	#14	VFD ON
	1	#14	VFD FAULT
	1	#14	VFD HOA IN AUTO
	1	#14	VFD HOA IN HAND
	1	#14	VFD TRANSFOMER HIGH TEMP.
	2	#14	SPARE
3/4"	1	#18TSP	VFD RUNNING SPEED
	1	#18TSP	VFD COMMAND SPEED
3/4"	1	RS485	BELDEN 9842 (TEMP. MONITOR)
3/4"	1	CAT6U	ETHERNET
3/4"	-	-	PULL STRING

TABLE SV

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO SURGE VAULT
3/4"	1	#14	_COMMON INPUT
	1	#14	_COMMON OUTPUT
	1	#14	ACCESS HATCH POSITION SW.
	1	#14	AIR RELEASE SOL. VALVE OPEN
	1	#14	AIR SUPPLY SOL. VALVE OPEN
	2	#14	EF-XX-02 EXHAUST FAN RUN
	1	#14	SUMP PUMP FLOW SWITCH
	2	#14	VALVE +/- 24 VOLTS
	1	#14	VALVE CLOSED
	1	#14	VALVE OPEN
	1	#14	VAULT FLOOD SWITCH
3/4"	1	#16TSP	DIFFERENTIAL PRESSURE TRANS.

TABLE VALVE

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO BUTTERFLY VALVE
3/4"	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	VALVE FULL OPEN
	1	#14	VALVE FULL CLOSED
	1	#14	+24VDC
	2	#14	-24VDC

GROUNDING ELECTRODE CONDUCTOR SERVICE ENTRANCE OR SEPARATELY DERIVED SYSTEM

COPPER CONDUCTOR	WIRE SIZE
#2 OR SMALLER	#8
1 OR 1/0	#6
2/0 OR 3/0	#4
>3/0 THRU 350 KCMIL	#2
>350 KCMIL THRU 600 KCMIL	1/0

TABLE SP 07

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO SECURITY PANEL
1"	2	#14	MAINTENACE ROOM DOOR OPEN
	2	#14	PUMP ROOM DOOR OPEN
	2	#14	PUMP ROOM HATCH OPEN
	2	#14	MAIN DOOR CONTROLS
	2	#14	MAINT. DOOR CONTROLS
	2	#14	24 VAC POWER
	4	#14	SPARE
3/4"	1	CAT6U	ETHERNET

TABLE SP 16

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO SECURITY PANEL
1"	2	#14	PUMP ROOM HATCH OPEN
	2	#14	PUMP ROOM DOOR OPEN
	2	#14	MAINTENANCE DOOR OPEN
	2	#14	MAIN DOOR CONTROLS
	2	#14	CHLORINE ROOM DOOR OPEN
	2	#14	CHLORINE ROOM DOOR CONTROS
	2	#14	MAINTEENANCE DOOR CONTROLS
	2	#14	24 VAC POWER
3/4"	1	CAT6U	ETHERNET

TABLE SP 17

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO SECURITY PANEL
3/4"	2	#14	MAINTENANCE DOOR OPEN
	2	#14	PUMP ROOM DOOR OPEN
	2	#14	MAIN DOOR CONTROLS
	2	#14	MAINTEENANCE DOOR CONTROLS
	2	#14	24 VAC POWER
3/4"	1	CAT6U	ETHERNET

TABLE GEN

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO GENERATOR
1"	1	#14	COMMON INPUT
	1	#14	GENERATOR RUNNING
	1	#14	GENERATOR ALARM
	1	#14	LOW FUEL LEVEL (LSL-X)
1"	1	CAT 5	ETHERNET
1"	1	PULL TAPE	SPARE CONDUIT

TABLE 4

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO MOTOR DEVICES
3/4"	1	#14	COMMON INPUT
	1	#14	HIGH DISCHARGE PRESSURE
	1	#14	COMMON OUTPUT
	1	#14	PRE-LUBE SOLENOID VALVE
	1	#14	TURBIDITY SOLENOID VALVE

TABLE CP

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO CHLORINE CONTROL PANEL
3/4"	1	#14	_COMMON INPUT
	1	#14	_COMMON OUTPUT
	1	#14	CHL. RM. EXHAUST FAN COMMAND RUN
	1	#14	CHL. RM. EXHAUST FAN HOA IN AUTO
	1	#14	CHL. RM. EXHAUST FAN HOA IN HAND
	1	#14	CHL. RM. EXHAUST FAN RUNNING
	1	#14	GEN. RM. EXHAUST FAN COMMAND RUN
	1	#14	GEN. RM. EXHAUST FAN RUNNING

TABLE DT

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO DAY TANK CP
3/4"	1	#14	COMMON INPUT
	1	#14	HIGH/LOW FUEL LEVEL ALARM
	1	#14	LEAK DETECTOR ALARM
	2	#14	SPARE
3/4"	-	-	PULL STRING

TABLE ATS

CONDUIT SIZE	CONDUCTOR QTY	CONDUCTOR SIZE	SIGNAL DESCRIPTION MCP TO ATS
3/4"	1	#14	COMMON INPUT
	1	#14	COMMON OUTPUT
	1	#14	EMERGENCY CB OPEN
	1	#14	EMERGENCY CB CLOSED
	1	#14	NORMAL CB OPEN
	1	#14	NORMAL CB CLOSED
	1	#14	REMOTE TRANSFER
	2	#14	SPARE
3/4"	1	CAT 5	ETHERNET

EQUIPMENT GROUNDING CONDUCTORS

FUSE OR CB SIZE	SIZE (COPPER)
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER NAME	MANUFACTURER CATALOG NO.	FIX VA	LAMP	MOUNTING	NOTES:
F1	4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION, MVOLT, 9850 LUMENS	METALUX	4VT2-LD4-8-DR-W-UNV-L840-CD1-U	91	FURNISHED	SURFACE	
F2	4' LED ENCLOSED INDUSTRIAL, FIBERGLASS HOUSING, DAMP LOCATION, MVOLT, 4528 LUMENS	METALUX	4VT2-LD4-4-DR-UNV-L840-CD1-U	38	FURNISHED	SURFACE	
F3	LED WALL MOUNTED 6-INCH OPEN CYLINDER 22-DEG BEAM SPREAD, 120 VOLT, BRONZE FINISH	INFINIUM	SPC0609LEDLE-12W-41K-MD-E1-FS-5045-SCBA-WM-BZ	12	FURNISHED	WALL	
F4	STRAIGHT ROUND 4.5" ALUMINUM 16' POLE FOR SECURITY CAMERA, DARK BRONZE.	LITHONIA	RSA-16-4-5G	-	-	-	
F5	UTILITY LED FLOOD LIGHT, 2,446 LUMEN, NON-DIMMING, 120 VAC, 5000K, 7H X 7V BEAM SPREAD HEAVY DUTY ARM MOUNTED WITH "O" RING	RAB	XSP25/120	25	LED	WALL	
F6	LED WALL MOUNTED SECURITY LIGHT	LITHONIA	DSXW1 LED-10C-350-40K-T2M-MVOLT-DDBXD	13	LED	WALL	

H.P.E., INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

Sheet List Table

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH
DRAFTED	KBH
CHECKED	KBH
DATE	MAY 2023

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1	06/01/23	ADDENDUM NO. 1	KBH	KBH

SCALE: NONE

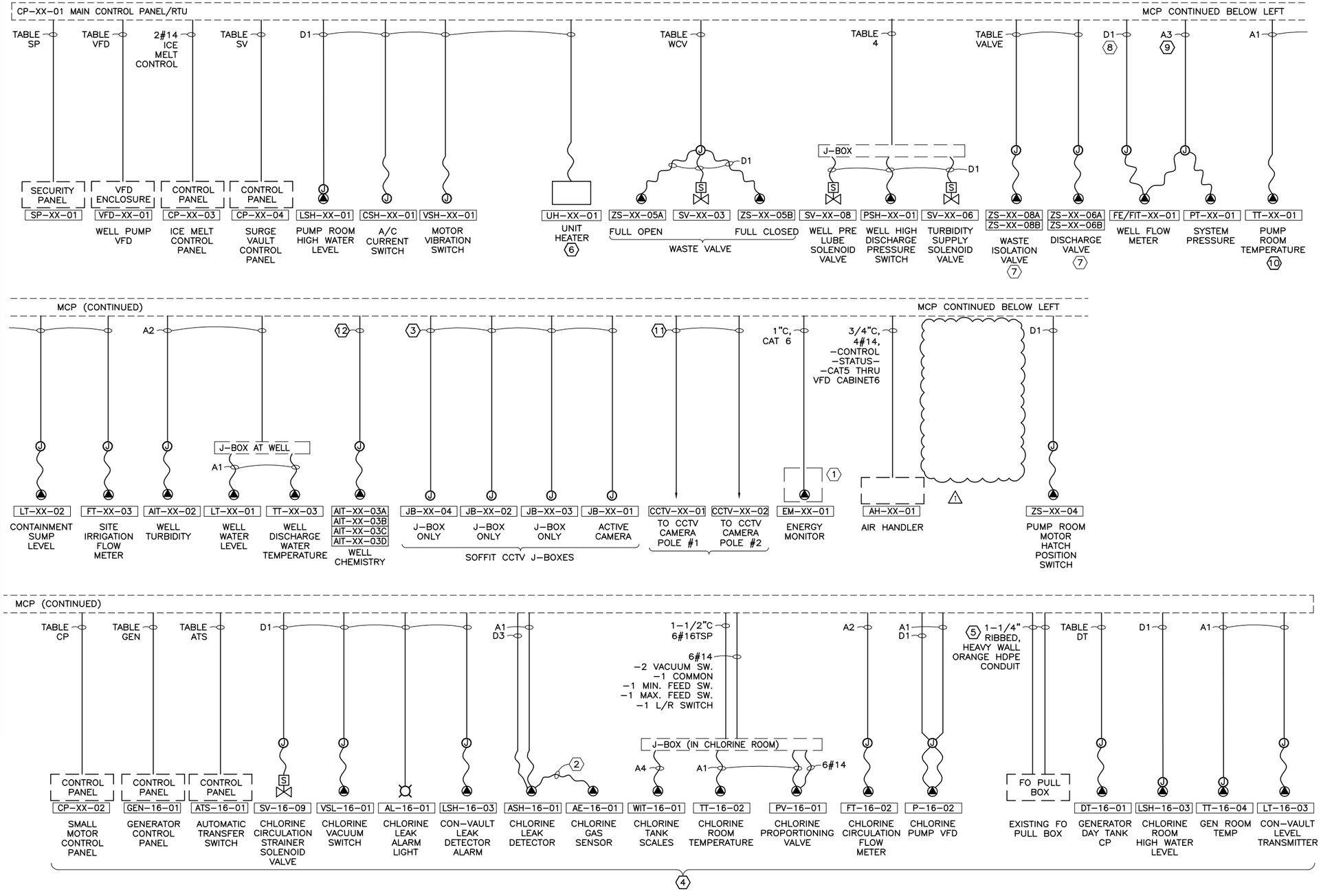
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
TABLES

SHEET E1.2
207.27.200

7/04



CP-XX-01
I & C ONE-LINE DIAGRAM

H.P.E., INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO ELECTRICAL SITE AND BUILDING PLANS FOR EQUIPMENT AND/OR DEVICE LOCATIONS. WELL 7 PLANS ARE E6.X SHEETS. WELL 16 PLANS ARE E7.X SHEETS. WELL 17 PLANS ARE E8.X SHEETS.
2. FOR WELL 7, REPLACE "XX" WITH "07". FOR WELL 16, REPLACE "XX"' WITH "16". FOR WELL 17, REPLACE "XX" WITH "17".
3. ALL CONDUITS SHALL BE 3/4" EXCEPT AS NOTED. TABLES FOR INSTRUMENTATION AND CONTROLS SHOWN ON SHEET E1.2.
4. OWNER PREFERRED INSTALLATION IS PVC BELOW SLAB WITH ACCURATE NOTATION ON AS-BUILT DOCUMENTS. INSTALL PVC COATED RIGID THROUGH CONCRETE FLOOR WITH RMC FOR ALL EXPOSED CONDUIT.
5. CONTRACTOR SHALL INSTALL ALL CONDUITS SHOWN. ALL WIRING COMBINATIONS SHALL BE APPROVED BY OWNER.

SHEET KEYNOTES:

1. MODBUS TCP TO POWER AND ENERGY METER. VERIFY SERVICE ENTRANCE SWITCHGEAR SECTION PRIOR TO CONDUIT ROUGH-IN.
2. CABLE SUPPLIED WITH PROBE. INSTALL IN CHLORINE ROOM. SEAL OPENING THROUGH WALL.
3. PROVIDE 3/4" C WITH PULL STRING FROM THE SINGLE GANG BOX TO THE RTU FOR THE IN-ACTIVE CAMERA BOXES. PROVIDE 3/4" C WITH RED CAT 6 CABLE FOR THE ACTIVE CAMERA BOX. ACTIVE CAMERA J-BOX NOTED ON THE PLANS.
4. APPLIES TO WELL 16 ONLY. EQUIPMENT NOT INSTALLED AT WELLS 7 OR 17.
5. BURIED: PROVIDE EITHER 1-1/4 ORANGE HDPE OR 2" SCH 80 PVC. EXPOSED: PROVIDE GALVANIZED RIGID STEEL CONDUIT. CONDUCTOR SHALL BE RED SHIELDED CAT 6 CABLE. PROVIDE LONG-RADIUS ELBOWS FOR ALL BENDS.
6. WELL 7 & 17: SHOWN FOR UH-XX-01, DUPLICATE FOR UN-XX-02. WELL 16: SHOWN FOR UH-16-01, DUPLICATE FOR UH-16-02, UH-16-03 AND UH-16-04.
7. THE WASTE ISOLATION VALVE, DISCHARGE VALVE ARE MANUAL VALVES WITH POSITION SWITCHES. THEY DO NOT HAVE MOTORIZED ACTUATORS.
8. POWER FOR THE FE/FIT-XX-01 IS VIA THE 2#14 (DC) WIRES. THE FLOW METERS ARE 24 VDC UNITS. REFER TO 11 54 00, 2.1 FOR ADDITIONAL INFORMATION.
9. PRESSURE SIGNAL, FLOW AND TOTAL FLOW SIGNALS.
10. SHOWN FOR WELLS 7 & 17. AT WELL 16, DUPLICATE FOR TT-16-02 CHLORINE ROOM TEMPERATURE TRANSMITTER AND TT-16-03 GENERATOR ROOM TEMPERATURE TRANSMITTER.
11. 1"C, BELDEN 7853A (OR APPROVED EQUAL).
12. ⚠ WELL #7 & #17: INSTALL "A3" (-03A/-03B/-03D). WELL #16: INSTALL "A4" (-03A/-03B/-03C/-03D).

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS
PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	KBH	2					
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH	KBH	
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: NONE

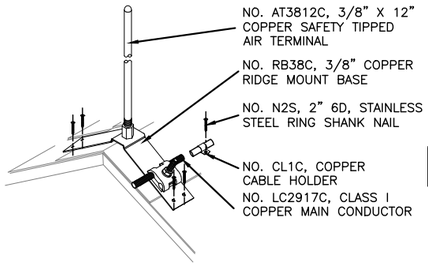
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

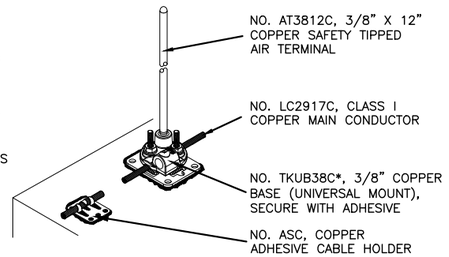
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
INST. & CONTROL ONE-LINE DIAGRAMS

SHEET E2.1
207.27.200

7/04

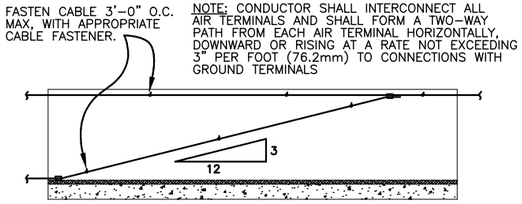


A AIR TERMINAL
— NTS

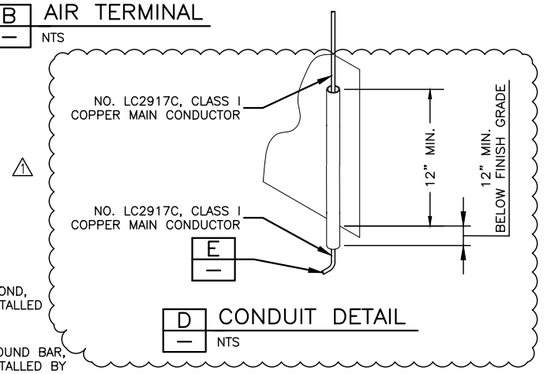


*** This product may be subject to patent rights of VFC. Consult your patent attorney about your rights and responsibilities regarding patented products.**

B AIR TERMINAL
— NTS

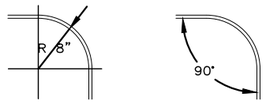


C 4 TO 1 CONDUCTOR DETAIL
— NTS

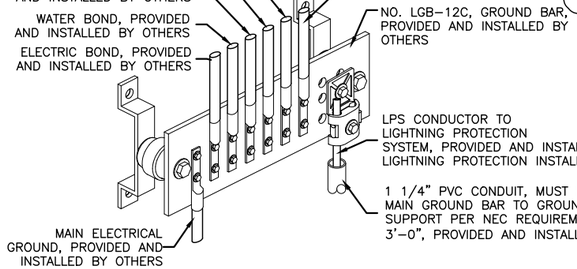


D CONDUIT DETAIL
— NTS

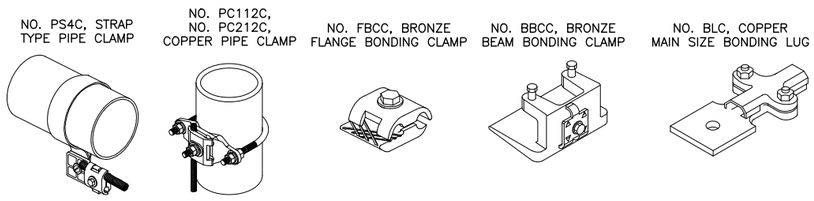
NOTE:
NO BEND OF A CONDUCTOR SHALL FORM AN INCLUDED ANGLE OF LESS THAN 90 DEGREES, NOR SHALL IT HAVE A RADIUS OF BEND LESS THAN 203mm (8").



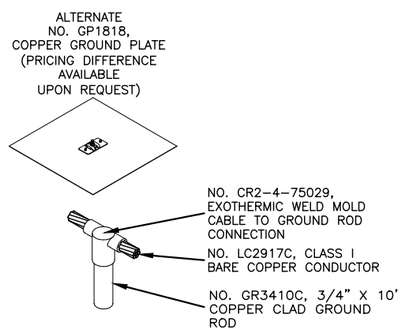
E BEND RADIUS DETAIL
— NTS



F COMMON BONDING GROUND BUS
— NTS



G MISCELLANEOUS
— NTS



H FurseWELD EXOTHERMIC WELD MOLD — CR2
— NTS

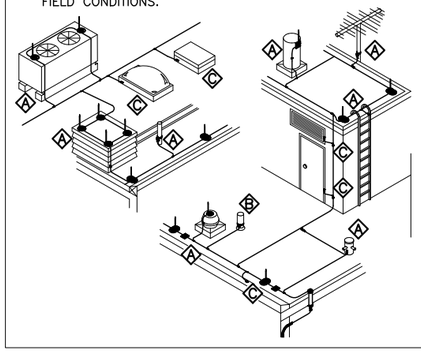
GENERAL BONDING NOTES

A TYPICAL BODIES OF CONDUCTANCE AS NOTED BELOW. USE FULL SIZE CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

B (PLUMBING STACK) REQUIRES BONDING WITH MAIN SIZE CABLE ONLY IF WITHIN 6'-0" (1,828mm) OF LIGHTNING PROTECTION SYSTEM.

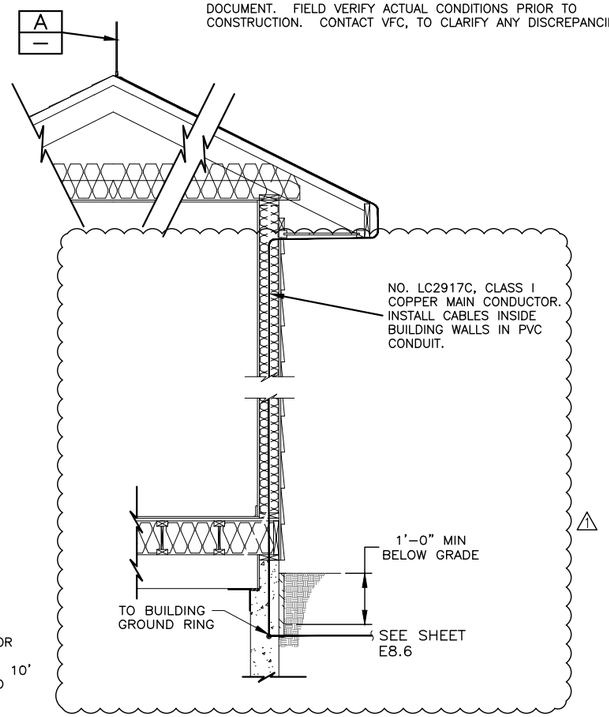
C TYPICAL BODIES OF INDUCTANCE AS NOTED BELOW. USE SECONDARY SIZE (SMALLER) CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

D BONDING CONNECTIONS AND FITTINGS SHOWN ARE TYPICAL EXAMPLES. MAKE ALL CONNECTIONS REQUIRED TO MEET CODES AS NOTED BELOW. ADJUST FITTING TYPE AS REQUIRED TO SUIT FIELD CONDITIONS.



GENERAL CONSTRUCTION NOTES

1. THIS DRAWING IS INTENDED FOR USE AS A CONSTRUCTION DOCUMENT. FIELD VERIFY ACTUAL CONDITIONS PRIOR TO CONSTRUCTION. CONTACT VFC, TO CLARIFY ANY DISCREPANCIES.



I TYPICAL DOWNLEAD DETAIL
— NTS

GENERAL INSTALLATION NOTES

1. LOCATE AIR TERMINALS AS SHOWN. TAKE CARE TO ENSURE THAT ALL POINTS ARE WITHIN 2'-0" (609mm) OF OUTSIDE BUILDING EDGE, OUTSIDE CORNERS, RIDGE ENDS, AND THAT MAX SPACING DOES NOT EXCEED 20'-0" (6,096mm), AND THAT MIN PROJECTION ABOVE OBJECT PROTECTED IS 10" (254mm); POINTS PROJECTING 24" (609mm) MAY BE SPACED @ 25'-0" (7,520mm) MAX.
2. MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR. INSURE THAT ALL BENDS HAVE AT LEAST AN 8" (203mm) RADIUS AND DO NOT EXCEED 90 DEGREES.
3. ATTACH ALL EXPOSED ROOF, DOWN LEAD AND BONDING CABLES AT 3'-0" (914mm) ON CENTER MAX. VERIFY COMPATIBILITY OF ADHESIVE ON MEMBRANE ROOF APPLICATION PRIOR TO INSTALLATION.
4. GROUND ROD ELECTRODES SHALL BE INSTALLED AS SHOWN, BUT IN NO INSTANCE SHALL THEY BE LESS THAN 1'-0" (304mm) BELOW GRADE AND 2'-0" (609mm) FROM FOUNDATION WALL. DRIVEN RODS SHALL PENETRATE THE EARTH AT LEAST 10'-0" (3,048mm).
5. BOND TO WATER SERVICE AND OTHER PIPING SYSTEMS AS SHOWN AND AS REQUIRED BY CODE.
6. MAIN SIZE LIGHTNING CONDUCTOR BONDED TO MAIN GROUND BUS FIELD VERIFY LOCATION 1 1/4" CONDUIT FOR ACCESS, INSTALLED BY OTHERS. INTERCONNECT LIGHTNING PROTECTION GROUND TO TELEPHONE AND OTHER BUILDING GROUND SYSTEMS LOCATION FIELD DETERMINED OR AS REQUIRED BY CODE.
7. LB'S AND SIMILAR CONDUIT BODIES MAY NOT BE USED IN THE INSTALLATION OF DOWNLEAD CONDUITS, AS THEY DO NOT ADHERE TO THE REQUIRED 8" (203mm) MINIMUM BEND RADIUS.
8. SYSTEM SHALL BE INSTALLED AS SHOWN TO INSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION. ANY MAJOR VARIANCE SHALL BE RESUBMITTED FOR APPROVAL.
9. ALL MATERIALS TO BE UNDERWRITER'S LABORATORIES APPROVED WITH APPROPRIATE UL96 MARKINGS.
10. FINAL SYSTEM INSPECTION AND QUALITY CONTROL

    A) THE CONTRACTOR SHALL FURNISH AN LPI-IP CERTIFICATE OR A UL CERTIFICATE UPON COMPLETION OF THE INSTALLATION.

    B) LPI CERTIFICATION IF REQUIRED, REQUIRES SIGNATURE BY A REPRESENTATIVE OF THE OWNER AT MULTIPLE STAGES OF INSTALLATION & BY THEIR THIRD PARTY FIELD STAFF. UL CERTIFICATION IF REQUIRED, REQUIRES INSPECTION BY THEIR THIRD-PARTY FIELD STAFF AFTER COMPLETION OF THE INSTALLATION.

    C) AS-BUILT DRAWINGS SHALL BE COMPLETED AND STAMPED BY AN LPI CERTIFIED MASTER DESIGNER – INSTALLER OF LIGHTNING PROTECTION SYSTEMS.

    D) FINAL INSPECTION REPORT – A FINAL INSPECTION AND INSPECTION REPORT SHALL BE COMPLETED BASED ON ANSI/TIA/EIA 607, NEC, NFPA 780, AND UL96A INDUSTRY STANDARDS AS APPLICABLE. THE SCOPE OF THE INSPECTION AND REPORT SHALL INCLUDE;

    a. TEST AND EVALUATION THE OF GROUNDING SYSTEM. RECORD FINAL SYSTEMS TO GROUND RESISTANCE LEVEL.
    b. EVALUATION AND TESTING OF THE INTERNAL BONDING AND GROUNDING SYSTEMS.
    c. EVALUATION AND TESTING OF EQUIPMENT GROUNDING.
    d. EVALUATION OF AC SURGE SUPPRESSION INSTALLATION.
    e. EVALUATION OF TELCO SURGE SUPPRESSION INSTALLATION.
    f. COPY OF THE LPI-IP OR UL LIGHTNING PROTECTION CERTIFICATION.
    g. FINAL AS-BUILT REVIEW AND SUBMISSION.

    E) REPORT SHALL INCLUDE DETAILED REPORTING AND TEST RESULTS WITH CORRESPONDING PHOTOS OF EACH EVALUATION CATEGORY.

11. SYSTEM TO BE DESIGNED AND INSTALLED BY:

    VFC LIGHTNING PROTECTION
    90 NORTH CUTLER DRIVE * NORTH SALT LAKE, UT 84054
    PHONE: (801) 292-2956 * FAX: (801) 292-4164
    EMAIL: cad@vfcinc.com * INTERNET: www.vfcinc.com

12. SYSTEM DESIGNED UTILIZING UL LISTED VFC MATERIALS.

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	KBH	2			
CHECKED	KBH	1	06/01/23 ADDENDUM NO. 1	KBH	KBH
DATE	MAY 2023	NO.	DATE REVISIONS	BY	APVD.

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

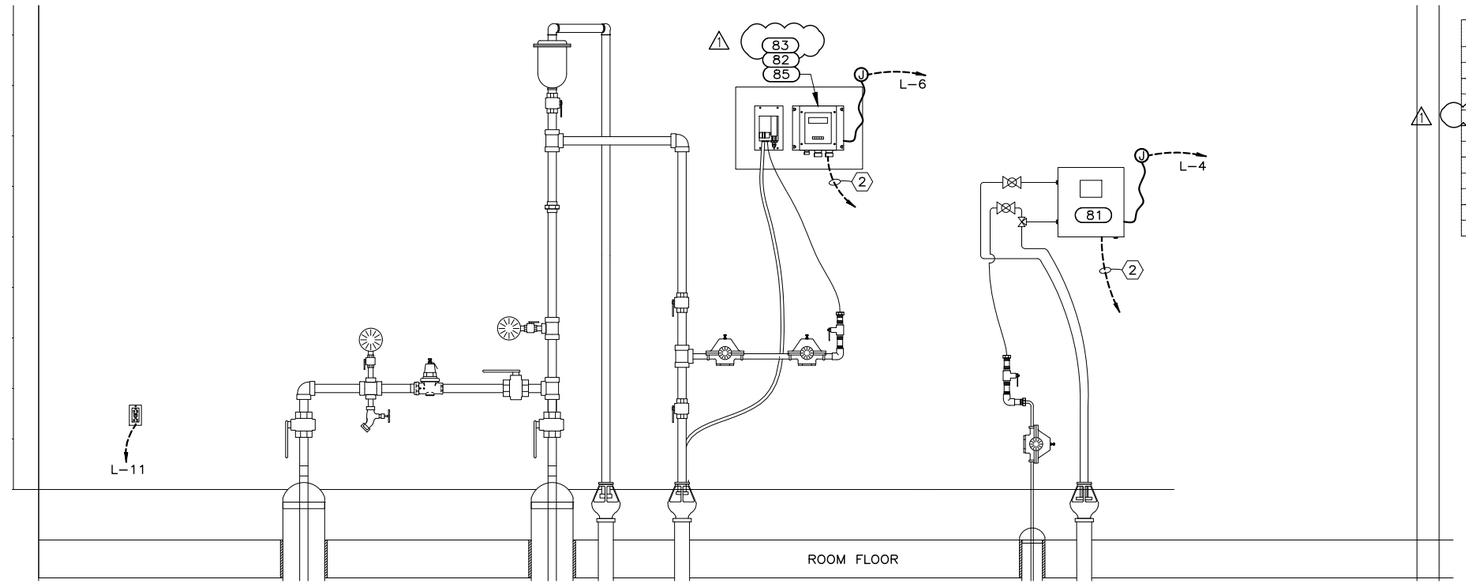
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
LIGHTNING DETAILS

SHEET E5.2

207.27.200

FILE NAME:
FILE DATE:

7/04



WELL #7 & # 17 WET WALL | A E6.8 | A E8.8

0 0.5' 1' 2' 3'

1"=1'-0"

WET WALL PLAN ITEMS

DRAWING ID	DESCRIPTION	WELL 7 TAG	WELL 16 TAG	WELL 17 TAG
32	CHLORINE CIRCULATION PUMP		P-16-02	
73	CHLORINE LEAK DETECTOR		ASH-16-01	
81	WELL TURBIDITY ANALYZER	AIT-07-02	AIT-16-02	AIT-17-02
82	WELL pH ANALYZER	AIT-07-03A	AIT-16-03A	AIT-17-03A
83	WELL CONDUCTIVITY ANALYZER	AIT-07-03B	AIT-16-03B	AIT-17-03B
84	RESIDUAL CHLORINE ANALYZER		AIT-16-03C	
85	WATER TEMPERATURE TRANSMITTER	AIT-07-03D	AIT-16-03D	AIT-17-03D
89	CHLORINE CIRCULATION FLOW METER		FT-16-02	
117	CHLORINE CIRCULATION STRAINER SOLENOID VALVE		SV-16-09	

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

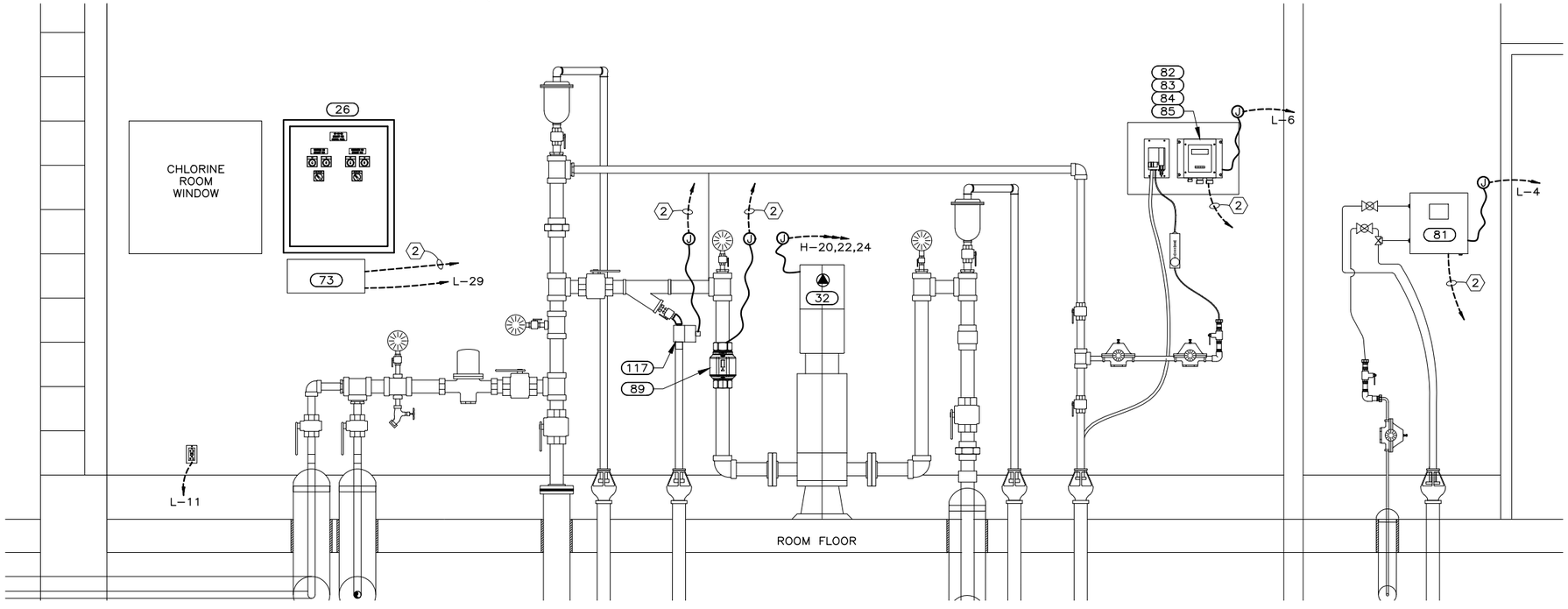
FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO ONE-LINE DIAGRAMS FOR WIRE AND CONDUIT REQUIREMENTS.
2. PRIOR TO CONDUIT ROUGH-IN VERIFY LOCATIONS OF ALL DEVICES WITH INSTALLER.

SHEET KEYNOTES:

1. TO PANELBOARD L.
2. WELL #7: TO CP-07-01, WELL #16: TO CP-16-01, WELL #17: TO CP-17-01.



WELL #16 WET WALL | B E7.8

0 0.5' 1' 2' 3'

1"=1'-0"

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

PROJECT ENGINEER

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	KBH	3	·	·	· ·
DRAFTED	KBH	2	·	·	· ·
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH KBH
DATE	MAY 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WET WALL

SHEET E5.4

207.27.200

FILE NAME:
FILE DATE:

7/04

WELL 7 PANELBOARD SCHEDULE EXISTING VAULT "PRV"

LOCATION: WELL 7 VAULT | MFGR: EXISTING | 200 AMPS | VOLTS: 240/120
DIMENSIONS: 20"W x 5.75"D x 56"H | TYPE: SIEMENS | XX M.C.B | PHASE: 1
MOUNTING: SURFACE | NEMA: 1 | WIRES: 2
FEED: BOTTOM | 10,000 A.I.C. | FED FROM: TRANSFORMER PRV

BRKR A	BRKR P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.	NO	N-CONT. WATTS	CONT. WATTS	WIRE SIZE	DESCRIPTION	BRKR A	BRKR P
				PHASE LOADS													
20	1	EX CONTROL PNL	212	1,200		1	1,200	0			2				SPARE	20	1
20	1	SUMP PUMP	212		864	3			0	864	4				SPARE	20	1
20	1	REC	212		360	5	1,200	360			6		1,200	212	RTU	20	1
20	1	SPARE				7			624	0	8		624	212	LIGHTING	20	1
20	1	SPARE				9	0	0			10				SPARE	20	1
20	1	SPARE				11			0	0	12				SPARE	20	1
30	2	ELECTRIC SPACE HEATER	20		2,000	13	0	2,000			14				SPARE	20	1
-	-	-	-		2,000	15			0	2,000	16				SPARE	20	1
20	1	SPARE				17	0	0			18				SPARE	20	1
20	1	SPARE				19			0	0	20				SPARE	20	1
	1	AVAILABLE SPACE				21	0	0			22				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				23			0	0	24				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				25	0	0			26				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				27			0	0	28				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				29	0	0			30				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				31			0	0	32				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				33	0	0			34				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				35			0	0	36				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				37	0	0			38				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				39			0	0	40				AVAILABLE SPACE		1
	1	AVAILABLE SPACE				41	0	0			42				AVAILABLE SPACE		1
									0	0							
		TOTAL WATTS:		1,200	5,224		2,400	2,360	624	2,864		0	1,824				
		CONTINUOUS LOAD:		3,024													
		CONTINUOUS LOAD * 125%:		3,780													
		NON-CONTINUOUS LOAD:		5,224													
		DESIGN WATTS:		9,004													
		MIN. RATING (AMPS):		38													

WELL 7 CONTROL PANEL CP-07-03

LOCATION: PUMP ROOM | MFGR: N/A | N/A AMPS | VOLTS: 208/120
DIMENSIONS: | TYPE: CUSTOM | PHASE: 1
MOUNTING: SURFACE | NEMA: 12 | WIRES: 3
FEED: BOTTOM | FED FROM: PANELBOARD L

BRKR A	BRKR P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.
				PHASE LOADS						
30	2	ICE MELT CABLES	20	1,716		1	858		858	
	1	SPACE				1				
		TOTAL WATTS:		1,716	0		858	0	858	0
		CONTINUOUS LOAD:		1,716						
		CONTINUOUS LOAD * 125%:		2,145						
		NON-CONTINUOUS LOAD:		0						
		DESIGN WATTS:		2,145						
		MIN. RATING (AMPS):		10						

WELL 7 CONTROL PANEL CP-07-04

LOCATION: SURGE TANK VAULT | MFGR: N/A | N/A AMPS | VOLTS: 240/120
DIMENSIONS: 20"W x 8"D x 24"H | TYPE: CUSTOM | 30 M.C.B. | PHASE: 1
MOUNTING: SURFACE | NEMA: 12 | WIRES: 3
FEED: SIDE | 10,000 A.I.C. | FED FROM: PANELBOARD L

BRKR A	BRKR P	DESCRIPTION	WIRE SIZE	CONT. WATTS	N-CONT. WATTS	NO	A CONT.	A N-CONT.	B CONT.	B N-CONT.
				PHASE LOADS						
20	1	RECPT. SUMP PUMP (SP-07-01)	212	1,180		1	1,180	0		
20	1	VAULT LIGHTS	212	76		3			76	0
20	1	VAULT OUTLET	212		180	5	0	180		
15	1	EXHAUST FAN (EF-07-02)	212	150		7			150	0
20	2	UNIT HEATER (UH-07-03)	212		2,000	9	0	1,000	0	1,000
20	1	SPARE				11			0	0
	1	SPACE				13	0	0		
	1	SPACE				15			0	0
		TOTAL WATTS:		1,406	2,180		1,180	1,180	226	1,000
		CONTINUOUS LOAD:		1,406						
		CONTINUOUS LOAD * 125%:		1,758						
		NON-CONTINUOUS LOAD:		2,180						
		DESIGN WATTS:		3,938						
		MIN. RATING (AMPS):		16						

PROJECT TAG LIST

WELL 7 HVAC EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATIDN	SUPPLIED BY	INSTALLED BY
126	FC-07-01	INDOOR FAN COIL UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
127	MCU-07-01	OUTDOOR CONDENSIONG UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
128	AH-07-01	AIR HANDLER	PUMP RM.	CONTRACTOR	CONTRACTOR
129	CU-07-01	CONDENSING UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
134	UH-07-01	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR
135	UH-07-02	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR
138	UH-07-05	UNIT HEATER	SURGE VAULT	CONTRACTOR	CONTRACTOR
146	EF-07-03	EXHAUST FAN	SURGE VAULT	CONTRACTOR	CONTRACTOR

WELL 7 PUMP AND EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
10	PME-07-01	PRIMARY METERING EQIPMENT	SITE	UTILITY CO.	UTILITY CO.
11	MS-07-01	METER SOCKET	SITE	CONTRACTOR	CONTRACTOR
12	MSD-07-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
15	XFMR-07-01	TRANSFORMER H	SITE	CONTRACTOR	CONTRACTOR
16	XFMR-07-02	TRANSFOMER L	PUMP RM.	CONTRACTOR	CONTRACTOR
17	PNL-07-H	PANELBOARD H	PUMP RM.	CONTRACTOR	CONTRACTOR
18	PNL-07-L	PANELBOARD L	PUMP RM.	CONTRACTOR	CONTRACTOR
19	VFD-07-01	VARIABLE EREQUENCY DRIVE	PUMP RM.	CONTRACTOR	CONTRACTOR
23	AC-07-01	AIR COMPRESSOR	PUMP RM.	CONTRACTOR	CONTRACTOR
24	AD-07-01	AIR DRYER	PUMP RM.	CONTRACTOR	CONTRACTOR
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
27	CP-07-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
29	EM-07-1	ENERGY AND POWER MONITOR	SITE	CONTRACTOR	CONTRACTOR
30	PC-07-01	LIGHTING PHOTOCELL	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
31	P-07-01	WELL PUMP	PUMP RM.	CONTRACTOR	CONTRACTOR
37	IM-07-01	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
38	IM-07-02	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
39	IM-07-03	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
40	IM-07-04	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
41	IM-07-05	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
43	IT-07-01	IRRIGATION VALVE TIMER	PUMP RM.	CONTRACTOR	CONTRACTOR
45	RTU-07-02	PRV VAULT SCADA RTU	PRV VAULT	EXISTING	EXISTING
46	FD-07-01	FUSED DISCONNECT	PRV VAULT	CONTRACTOR	CONTRACTOR
47	PNL-07-PRV	EXISTING PANELBOARD	PRV VAULT	EXISTING	EXISTING
80	XFMR-07-03	TRANSFORMER PRV	PRV VAULT	CONTRACTOR	CONTRACTOR

WELL 7 SWITCHES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
52	LSH-07-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
53	LSH-07-02	SURGE TANK VAULT FLOOR HIGH WATER SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
54	PSH-07-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
55	VSH-07-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
64	ZS-07-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
65	ZS-07-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
66	ZS-07-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
67	ZS-07-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
68	ZS-07-07	SURGE TANK VAULT HATCH POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
69	ZS-07-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
70	ZS-07-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
71	ZS-07-09A	SURGE VALVE OPEN POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
72	ZS-07-09B	SURGE VALVE CLOSED POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
74	HS-07-01	VAULT EF HOR SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
75	CSH-07-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 7 INSTRUMENTS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
81	AIT-07-02	WELL TURBIDITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
82	AIT-07-03A	WELL pH ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
83	AIT-07-03B	WELL CONDUCTIVITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
85	AIT-07-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
87	FIT-07-01	WELL FLOW METER	PUMP RM.	CONTRACTOR	CONTRACTOR
88	FT-07-03	IRRIGATION FLOW METER	SITE	CONTRACTOR	CONTRACTOR
90	LT-07-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
91	LT-07-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP	CONTRACTOR	CONTRACTOR
92	LT-07-03	CANAL LEVEL TRANSMITTER	SITE	CONTRACTOR	CONTRACTOR
95	PT-07-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
96	TE-07-01	MOTOR TEMPERATURE MONITOR	PUMP RM.	CONTRACTOR	CONTRACTOR
97	TT-07-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
99	TT-07-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
101	DPT-07-01	DIFFERENCIAL PRESSURE TRANSMITTER	SURGE VAULT	CONTRACTOR	CONTRACTOR

TABLES CONTINUED ON SHEET E6.3

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 7 MCP/RTU INPUT/OUTPUT LIST

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT	TAG
AI	CONTAINMENT SUMP LEVEL	LT-XX-02	LT-07-02
AI	PUMP RM. TEMPERATURE	TT-XX-01	TT-07-01
AI	SURGE TANK WATER LEVEL	DPT-XX-01	DPT-07-01
AI	SYSTEM PRESSURE	PT-XX-01	PT-07-01
AI	WELL CONDUCTIVITY	AIT-XX-03B	AIT-07-03B
AI	WELL DISCHARGE WATER TEMPERATURE	TT-XX-03	TT-07-03
AI	WELL FLOW	FIT-XX-01	FIT-07-01
AI	WELL pH	AIT-XX-03A	AIT-07-03A
AI	WELL TURBIDITY	AIT-XX-02	AIT-07-02
AI	WELL VFD RUNNING SPEED	VFD-XX-01	VFD-07-01
AI	WELL WATER LEVEL	LT-XX-01	LT-07-01
AI	WELL WATER TEMPERATURE TRANSMITTER	AIT-XX-03D	AIT-07-03D
AO	WELL VFD COMMAND SPEED	VFD-XX-01	VFD-07-01
DI	AIR COMPRESSOR HIGH CURRENT	CSH-XX-01	CSH-07-01
DI	DISCHARGE VALVE FULL CLOSED POSITION	ZS-XX-06B	ZS-07-06B
DI	DISCHARGE VALVE FULL OPEN POSITION	ZS-XX-06A	ZS-07-06A
DI	EYE WASH FLOW (FUTURE)	FS-XX-02	FS-07-02
DI	MAINTENANCE DOOR DOOR 2A NOT CLOSED	ZS-XX-02A	ZS-07-02A
DI	MAINTENANCE DOOR DOOR 2B NOT CLOSED	ZS-XX-02B	ZS-07-02B
DI	MOTOR HIGH TEMPERATURE SHUTDOWN	TE-XX-01	TE-07-01
DI	PUMP RM. DOOR 1A NOT CLOSED	ZS-XX-01A	ZS-07-01A
DI	PUMP RM. DOOR 1B NOT CLOSED	ZS-XX-01B	ZS-07-01B
DI	PUMP RM. HATCH NOT CLOSED	ZS-XX-04	ZS-07-04
DI	PUMP ROOM COOLING ON	AH-XX-01	AH-07-01
DI	PUMP ROOM HIGH FLOOR WATER ALARM	LSH-XX-01	LSH-07-01
DI	SURGE TANK VAULT FLOOR HIGH WATER ALARM	LSH-XX-02	LSH-07-02
DI	SURGE TANK VAULT HATCH NOT CLOSED	ZS-XX-07	ZS-07-07
DI	SURGE VALVE FULL CLOSED POSITION	ZS-XX-09B	ZS-07-09B
DI	SURGE VALVE FULL OPEN POSITION	ZS-XX-09A	ZS-07-09A
DI	SURGE VAULT SUMP PUMP FLOW	FS-XX-01	FS-07-01
DI	WASTE ISOLATION VALVE FULL CLOSED POSITION	ZS-XX-08B	ZS-07-08B
DI	WASTE ISOLATION VALVE NOT OPEN POSITION	ZS-XX-08A	ZS-07-08A
DI	WASTE VALVE FULL SYSTEM POSITION	ZS-XX-05B	ZS-07-05B
DI	WASTE VALVE WASTE FULL WASTE POSITION	ZS-XX-05A	ZS-07-05A
DI	WELL HIGH DISCHARGE PRESSURE	PSH-XX-01	PSH-07-01
DI	WELL MOTOR HIGH VIBRATION	VSH-XX-01	VSH-07-01
DI	WELL VFD FAULT	VFD-XX-01	VFD-07-01
DI	WELL VFD HOA IN AUTO	VFD-XX-01	VFD-07-01
DI	WELL VFD HOA IN HAND	VFD-XX-01	VFD-07-01
DI	WELL VFD RUNNING	VFD-XX-01	VFD-07-01
DI	WELL VFD TRANSFORMER OVERTEMPERATURE	VFD-XX-01	VFD-07-01
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-02	UH-07-02
DO	EXHAUST FAN	EF-XX-03	EF-07-03
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-01	UH-07-01
DO	SURGE TANK AIR RELEASE SOLENOID VALVE OPEN	SV-XX-02	SV-07-02
DO	SURGE TANK AIR SUPPLY SOLENOID OPEN	SV-XX-01	SV-07-01
DO	TURBIDITY SUPPLY SOLENOID VALVE OPEN	SV-XX-06	SV-07-06
DO	WASTE VALVE PILOT SOLENOID VALVE OPEN	SV-XX-03	SV-07-03
DO	WELL PRE-LUBE SOLENOID VALVE OPEN	SV-XX-0B	SV-07-08
DO	WELL VFD REMOTE RUN	VFD-XX-01	VFD-07-01
RS4B5	WELL MOTOR TERMPERATURES	TE-XX-01	TE-07-01
TCP/IP	WELL VFD PARAMETERS	VFD-XX-01	VFD-07-01

WELL 7 VAULT REMOTE/RTU INPUT/OUTPUT LIST

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT	TAG
AI	DOWN STREAM RPESSURE	PRV-AI-0	PRV-AI-0
AI	VAULT TEMPERATURE	PRV-AI-1	PRV-AI-1
DI	UTILITY POWER LOSS	PRV-DI-00	PRV-DI-00
DI	MAIN HATCH INTRUSION	PRV-DI-01	PRV-DI-01
DI	NE HATCH LITTLE INTRUSION	PRV-DI-02	PRV-DI-02
DI	SE HATCH LITTLE INTRUSION	PRV-DI-03	PRV-DI-03
DI	SE HATCH BIG INTRUSION	PRV-DI-04	PRV-DI-04
DI	NE HATCH BIG INTRUSION	PRV-DI-06	PRV-DI-06
DI	SW HATCH BIG INTRUSION	PRV-DI-06	PRV-DI-06
DI	SUM PUMP RUN STATUS	PRV-DI-07	PRV-DI-07
DI	VAULT FLOOD SWITCH (NORTH)	PRV-DI-08	PRV-DI-08
DI	VAULT FLOOD SWITCH (SOUTH)	PRV-DI-09	PRV-DI-09
DI	V-734 CLOSED STATUS	PRV-DI-10	PRV-DI-10
DI	V-734 OPEN STUTUS	PRV-DI-11	PRV-DI-11
DI	V-733 CLOSED STATUS	PRV-DI-12	PRV-DI-12
DI	V-733 OPEN STUTUS	PRV-DI 13	PRV-DI 13
DI	V-730 CLOSED STATUS	PRV-DI-14	PRV-DI-14
DI	V-730 OPEN STATUS	PRV-DI-15	PRV-DI-15
DI	V-731 CLOSED STATUS	PRV-DI-16	PRV-DI-16
DI	V-731 OPEN STATUS	PRV-DI-17	PRV-DI-17
DO	EXHAUST FAN RUN COMMAND	PRV-DO-0	PRV-DO-0

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER — No. 86-171214-2202 — KEITH B. HEGERHORST — 5/19/2023 — STATE OF UTAH

HANSEN ALLEN & LUCE INC. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	
DRAFTED	KBH	
CHECKED	KBH	
DATE	MAY 2023	

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1	06/01/23	ADDENDUM NO. 1	KBH	KBH

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 SCHEDULES, SHT. 2

SHEET E6.2
207.27.200

7/04

AVAILABLE FAULT CURRENT AT 12.47 KV

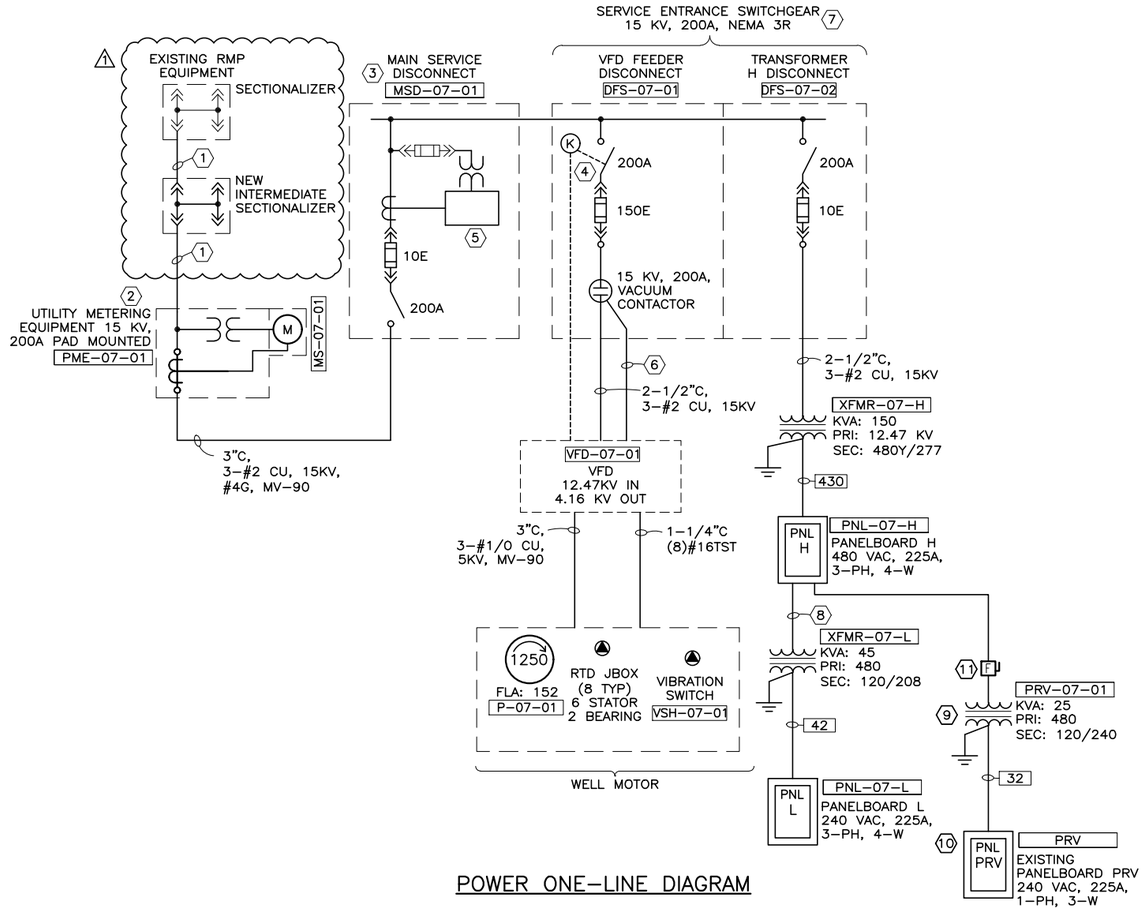
Primary System Fault Amps & Impedances

Short-Circuit Box

Node - CP_11406002.0160903/408

Voltage	12.8	Amps
LLL	5396.89	Amps
LLG	5228	Amps
LL	4772	Amps
LG	4393	Amps
Dist to source	6023.8	feet

	Ohms	Per Unit	X/R
R:	0.1782	0.1146	7.93
X:	1.4140	0.9093	
Ro:	0.5143	0.3307	4.79
Xo:	2.4615	1.5829	



POWER ONE-LINE DIAGRAM

TABLES CONTINUED FROM SHEET E6.2

WELL 7 SECURITY ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
33	SP-07-01	SECURITY PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
57	ZS-07-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
58	ZS-07-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
59	ZS-07-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
60	ZS-07-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
63	ZS-07-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
76	ML-07-01	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
78	CR-07-01	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
123	ML-07-03	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
124	CR-07-03	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
153	JB-07-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
154	JB-07-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
155	JB-07-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
156	JB-07-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
160	CCTV-07-01	SITE CAMERA 1 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR
161	CCTV-07-02	SITE CAMERA 2 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR

WELL 7 VALVES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
111	SV-07-01	SURGE TANK AIR SUPPLY SOLENOID VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR
112	SV-07-02	SURGE TANK AIR RELEASE SOLENOID VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR
113	SV-07-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
114	SV-07-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
116	SV-07-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
118	V-07-01	WASTE ISOLATION VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
119	V-07-02	PUMP-TO-WASTE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
120	V-07-03	DISCHARGE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
121	V-07-04	SURGE TANK VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED (801) 642-2051
708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

GENERAL NOTES:

1. REFER TO PLAN SHEETS FOR EQUIPMENT AND DEVICE LOCATIONS.
2. REFER TO CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
3. UTILITY COMPANY CONTACT: ALAN STEWART (801-360-1679), RODNEY.STEWART@ROCKYMOUNTAINPOWER.NET.
4. THE VFD AND MAIN SERVICE DISCONNECT EQUIPMENT SHALL BE FROM THE SAME MANUFACTURER.

SHEET KEYNOTES:

1. CONDUIT SIZE DETERMINED BY ROCKY MOUNTAIN POWER (RMP). COORDINATE WITH RMP AS REQUIRED.
2. PRIMARY METERING ENCLOSURE: PROVIDED BY UTILITY COMPANY, INSTALLED BY CONTRACTOR ON A PAD/VAULT AS REQUIRED BY UTILITY COMPANY. UTILITY COMPANY SHALL PROVIDE PT'S, CT'S AND METER.
3. MAIN SERVICE DISCONNECT: 15 KV, 200A FUSED SWITCH IN NEMA 3R LOCKABLE ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT". LABEL SWITCHBOARD WITH AVAILABLE FAULT CURRENT. SEE AVAILABLE FAULT CURRENT AT 12.47 KV TABLE ON THIS SHEET. LABEL AS REQUIRED BY NEC 110.24.
4. PROVIDE A KIRK-KEY INTERLOCK ON THE 15 KV VFD FUSED DISCONNECT AND THE VFD ENCLOSURE WITH 12 KV OR 4.16 KV COMPONENTS. VFD ENCLOSURE CANNOT BE OPENED UNLESS THE FUSED SWITCH IS OPEN.
5. THREE-PHASE POWER MONITOR WITH APPROPRIATE PT/CT'S FOR 12.47 KV SWITCHGEAR. EQUIPMENT SUPPLIER SHALL SIZE PT AND CT'S AS REQUIRED.
6. 3/4"C, WITH CONTROLS CONDUCTORS AS REQUIRED TO CONTROL THE VFD CONTACTOR.
7. EQUIPMENT SPACE HEATERS SHOWN ON PLAN DRAWINGS.
8. REFER TO PANELBOARD SCHEDULE FOR CIRCUIT ID, THEN THE WIRE AND CONDUIT REQUIREMENTS ARE AS SHOWN IN THE CONDUIT/CONDUCTOR TABLE ON E1.1.
9. INSTALL TRANSFORMER ABOVE EXISTING PANEL PRV IN THE VAULT.
10. INSTALL A 100A MAIN BREAKER IN THE EXISTING PNL PRV (SEE PHOTOS).
11. INSTALL A 600V, 60A, NEMA 3R DISCONNECT SWITCH AT THE ENTRY STAIR. COORDINATE LOCATION AT VAULT WITH CUWCD DURING CONSTRUCTION.
12. SECTIONALIZING ENCLOSURE PROVIDED BY UTILITY COMPANY, INSTALLED BY CONTRACTOR. CONDUCTORS PROVIDED AND INSTALLED BY UTILITY COMPANY.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE ENGINEERS

DESIGNED	KBH	3	·	·	·	·
DRAFTED	KBH	2	·	·	·	·
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH	KBH
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

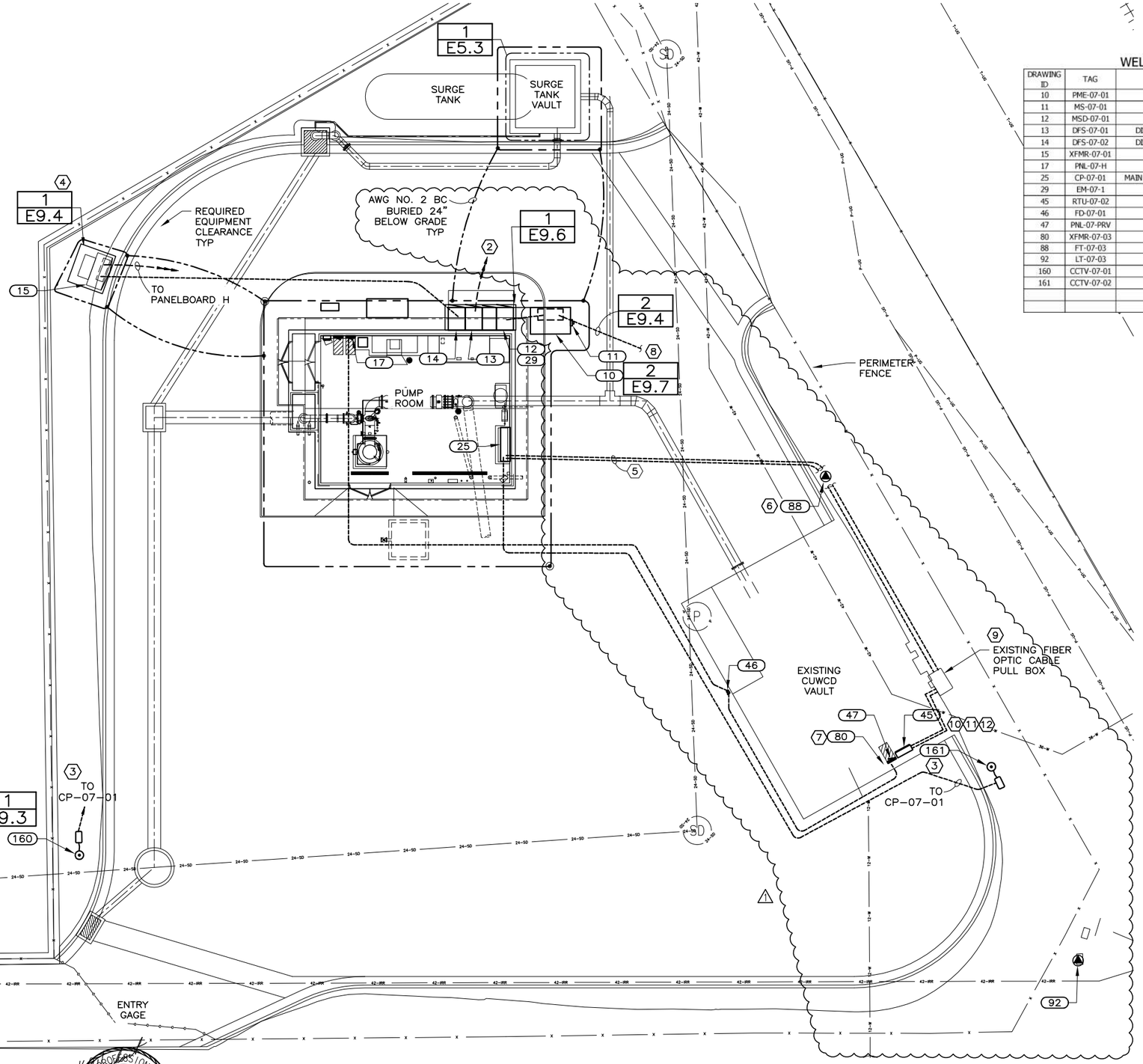
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 POWER ONE-LINE DIAGRAM

SHEET E6.3

207.27.200

7/04



WELL 7 ELECTRICAL SITE PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
10	PME-07-01	PRIMARY METERING EQIPMENT	UTILITY	SITE
11	MS-07-01	METER SOCKET	N/A	SITE
12	MSD-07-01	MAIN SERVICE DISCONNECT	PME-07-01	BLD. EXTERIOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-07-01	BLD. EXTERIOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-07-01	BLD. EXTERIOR
15	XFMR-07-01	TRANSFORMER H	DFS-07-02	SITE
17	PNL-07-H	PANELBOARD H	XFMR-07-01	PUMP RM.
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
29	EM-07-1	ENERGY AND POWER MONITOR	L-18	SITE
45	RTU-07-02	PRV VAULT SCADA RTU	PRV-6	PRV VAULT
46	FD-07-01	FUSED DISCONNECT	H-20,22	PRV VAULT
47	PNL-07-PRV	EXISTING PANELBOARD	XFMR-07-03	PRV VAULT
80	XFMR-07-03	TRANSFORMER PRV	FD-07-01	PRV VAULT
88	FT-07-03	IRRIGATION FLOW METER	CP-07-01	SITE
92	LT-07-03	CANAL LEVEL TRANSMITTER	CP-07-01	SITE
160	CCTV-07-01	SITE CAMERA 1 (FIXTURE F4)	CP-07-01	SITE
161	CCTV-07-02	SITE CAMERA 2 (FIXTURE F4)	CP-07-01	SITE

H.P.E., INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
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708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. "HOME RUN" POWER SOURCE LISTED IN THE SITE PLAN ITEM TABLE ABOVE.
2. FOR WIRE AND CONDUIT REQUIREMENTS, REFER TO THE POWER ONE-LINE AND/OR PANEL SCHEDULE FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT INFORMATION IS IN THE CONDUIT/CONDUCTOR TABLE ON E1.1.
3. CORE DRILL AND SEAL TIGHT CONDUIT PENETRATIONS THROUGH VAULT CONCRETE WALLS.
4. ALL EXTERIOR EQUIPMENT PADS SHALL BE ELEVATED 3-INCHES ABOVE GRADE OR FINISHED SURFACE.

SHEET KEYNOTES:

1. NOT USED.
2. TO VFD INSIDE BUILDING.
3. AIM CAMERA TOWARDS BUILDING ENTRY DOORS.
4. EXTEND TRANSFORMER PAD TO BACK OF CURB. ELEVATE HOUSEKEEPING PAD MIN. OF 3" ABOVE GRADE.
5. ⚠1 THIS KEYNOTE SUPERCEDES KEYNOTE 5 ON E2.1 INSTALL THREE 1-1/4" ORANGE HIGH DENSITY POLYETHYLENE HDPE RATED DUCTS.
   - 5.1. CONDUIT 1: 6-STRAND FIBER OPTIC CABLE.
   - 5.2. CONDUIT 2: 6-STRAND FIBER OPTIC CABLE.
   - 5.3. CONDUIT 3: LOCATING WIRE.
6. COORDINATE LOCATION OF FLOW METER WITH IRRIGATION CONTRACTOR DURING CONSTRUCTION.
7. INSTALL TRANSFORMER ABOVE EXISTING PANELBOARD.
8. INSTALL NEW 6-IN CONDUIT TO EXISTING 6-IN CONDUIT FOR PRIMARY SERVICE TO WELL METERING EQUIPMENT. COORDINATE WITH OWNER FOR LOCATION OF 6-IN CONDUIT DURING CONSTRUCTION.
9. ⚠1 DISCONNECT SIX STRAND CONDUCTOR FROM EXISTING SPLICE CASE IN PULL BOX. UTILIZE EXISTING SPLICE CASE FOR THE SIX STRAND RUN INTO THE WELL HOUSE.
10. TWO 1" CONDUITS PUNCHED THROUGH THE SIDEWALL OF THE VAULT AN D RUN SURFACE MOUNTED TO THE RTU CABINET FROM THE FIBER PULL BOX.
11. CONDUIT1: FIBER/SIGNAL CONNECTION TO RTU IN WELL HOUSE. THIS IS A CONTINUATION OF CONDUIT UNDER SHEET KEYNOTE 5.2.
12. CONDUIT 2: BLANK CONDUIT WITH PU7LL STRING. TO BE USED BY OTHERS.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

HANSEN ALLEN & LUCE, inc. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3					
DRAFTED	KBH	2					
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH	KBH	
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

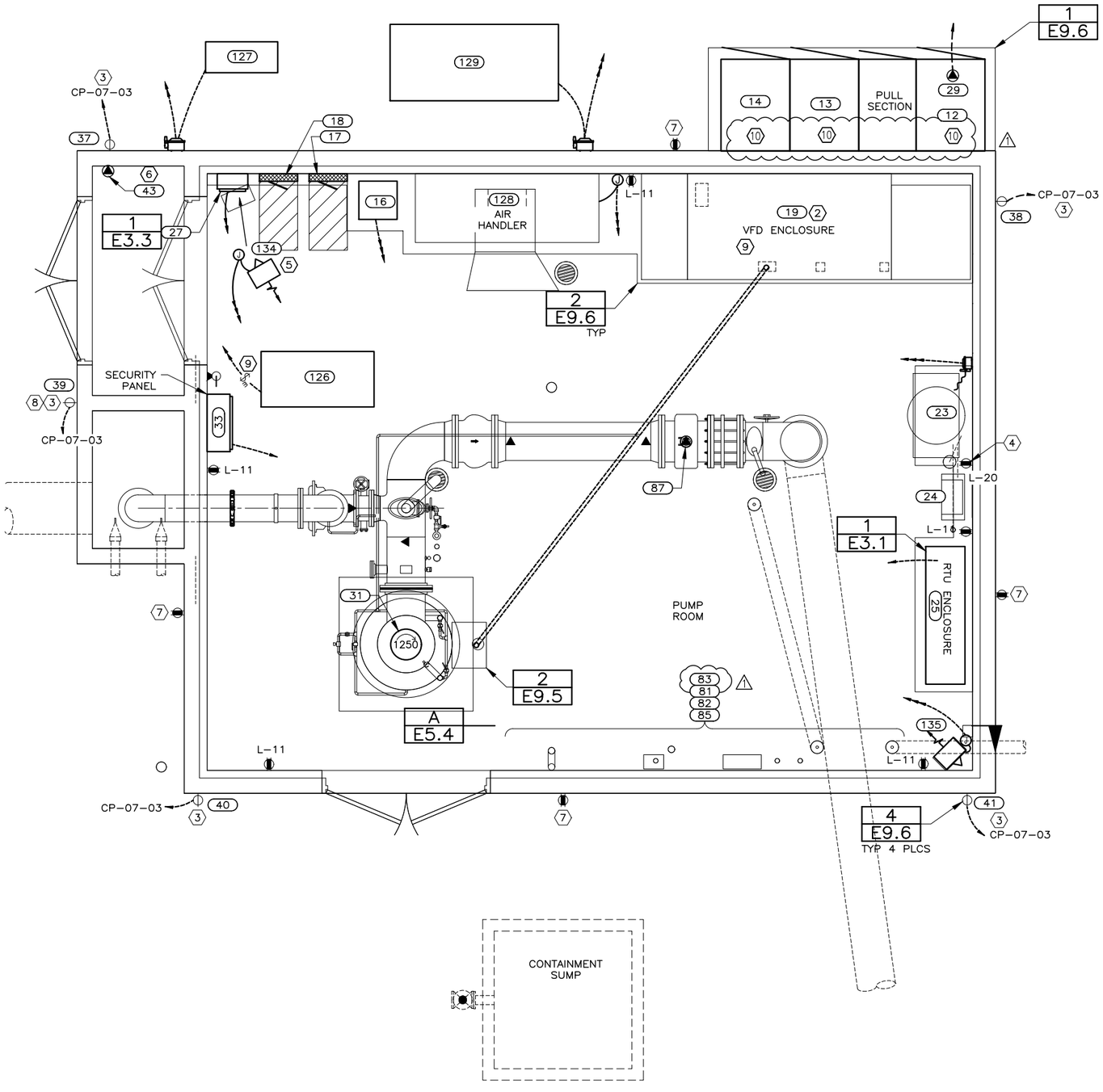
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 SITE PLAN

SHEET E6.4

207.27.200

7/04



0 2' 4' 8'
3/8"=1'-0"

N

WELL 7 POWER PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
12	MSD-07-01	MAIN SERVICE DISCONNECT	PME-07-01	BLD. EXTERIOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-07-01	BLD. EXTERIOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-07-01	BLD. EXTERIOR
16	XFMR-07-02	TRANSFOMER L	H-1,3,5	PUMP RM.
17	PNL-07-H	PANELBOARD H	XFMR-07-01	PUMP RM.
18	PNL-07-L	PANELBOARD L	XFMR-07-02	PUMP RM.
19	VFD-07-01	VARIABLE FREQUENCY DRIVE	DFS-07-01	PUMP RM.
23	AC-07-01	AIR COMPRESSOR	H-8,10,12	PUMP RM.
24	AD-07-01	AIR DRYER	L-7	PUMP RM.
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
27	CP-07-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	L-5,7	PUMP RM.
29	EM-07-1	ENERGY AND POWER MONITOR	L-18	SITE
31	P-07-01	WELL PUMP	VFD-07-01	PUMP RM.
33	SP-07-01	SECURITY PANEL	L-12	PUMP RM.
37	IM-07-01	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
38	IM-07-02	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
39	IM-07-03	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
40	IM-07-04	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
41	IM-07-05	ICE MELT RECEPTACLE	CP-07-03	BLD. EXTERIOR
43	IT-07-01	IRRIGATION VALVE TIMER	L-15	PUMP RM.
81	AIT-07-02	WELL TURBIDITY ANALYZER	L-5	PUMP RM.
82	AIT-07-03A	WELL pH ANALYZER	L-6	PUMP RM.
83	AIT-07-03B	WELL CONDUCTIVITY ANALYZER	L-6	PUMP RM.
85	AIT-07-03D	WATER TEMPERATURE TRANSMITTER	L-6	PUMP RM.
87	FIT-07-01	WELL FLOW METER	CP-07-01	PUMP RM.
126	FC-07-01	INDOOR FAN COIL UNIT	L-34,36	PUMP RM.
127	MCU-07-01	OUTDOOR CONDENSIONG UNIT	L-30,32	PUMP RM.
128	AH-07-01	AIR HANDLER	L-20,22,24	PUMP RM.
129	CU-07-01	CONDENSING UNIT	H-14,16,18	PUMP RM.
134	UH-07-01	UNIT HEATER	H-13,15,17	PUMP RM.
135	UH-07-02	UNIT HEATER	H-19,21,23	PUMP RM.

H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" SHOWN IN THE POWER PLAN ITEM LIST ABOVE. REFER TO ONE-LINE DIAGRAM, PANEL SCHEDULES AND CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. EQUIPMENT DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL MODIFY AS REQUIRED FOR PROVIDED EQUIPMENT. MAINTAIN NEC CLEARANCES AS REQUIRED.
3. INSTALL IN-SERVICE WEATHERPROOF COVERS ON ALL RECEPTACLES.

SHEET KEYNOTES:

1. REFER TO WELL 7 WET WALL ELEVATION ON E5.4 FOR LOCATIONS OF WATER CHEMISTRY INSTRUMENTS. SEE INSTRUMENTATION ELEVATION FOR HEIGHT OF DEVICE.
2. VFD INCLUDES 120 VAC SPACE HEATER CIRCUIT (L-10) AND 480 VAC FAN POWER CIRCUIT (H-7,9,11). REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
3. RECEPTACLE FOR ICE MELT CABLE. PROVIDE IN-SERVICE WEATHERPROOF COVER. FOR INSTALLATION REQUIREMENTS REFER TO WIRING DIAGRAM ON SEE SHEET E3.3.
4. RECEPTACLE FOR AIR DRYER. INSTALL BELOW AIR DRYER.
5. INSTALL UNIT HEATER ABOVE CP-07-03.
6. PROVIDE AND INSTALL A 2-INCH PVC CONDUIT FROM BELOW THE IRRIGATION TIMER TO THE IRRIGATION VALVE AREA. VALVE AREA IS NEAR THE IRRIGATION METER SHOWN ON THE E6.4 SITE PLAN.
7. INSTALL RECEPTACLE +18". WIRE TO CIRCUIT L-13. PROVIDE IN-SERVICE WEATHERPROOF COVER.
8. DOWNSPOUT DISCHARGES INTO WASTE BASIN. INSTALL RECEPTACLE FOR ICE MELT 8-IN ABOVE WASTE BASIN TOP-OF-WALL. DO NOT INSTALL RECEPTACLE IN BASIN.
9. INSTALL MANUAL STARTER NEAR SECURITY ENCLOSURE AND LABEL AS "FAN COIL DISCONNECT".
10. SWITCHGEAR CONDENSATE HEATER CIRCUITS: MSD-07-01, CKT. L-12. FUSED DISCONNECT SWITCH DFS-07-01, CKT. L-14. FUSED DISCONNECT SWITCH DFS-07-02, DKT. L-16.

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE, INC. ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3	·	·	·	·	·
DRAFTED	KBH	2	·	·	·	·	·
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH	KBH	
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

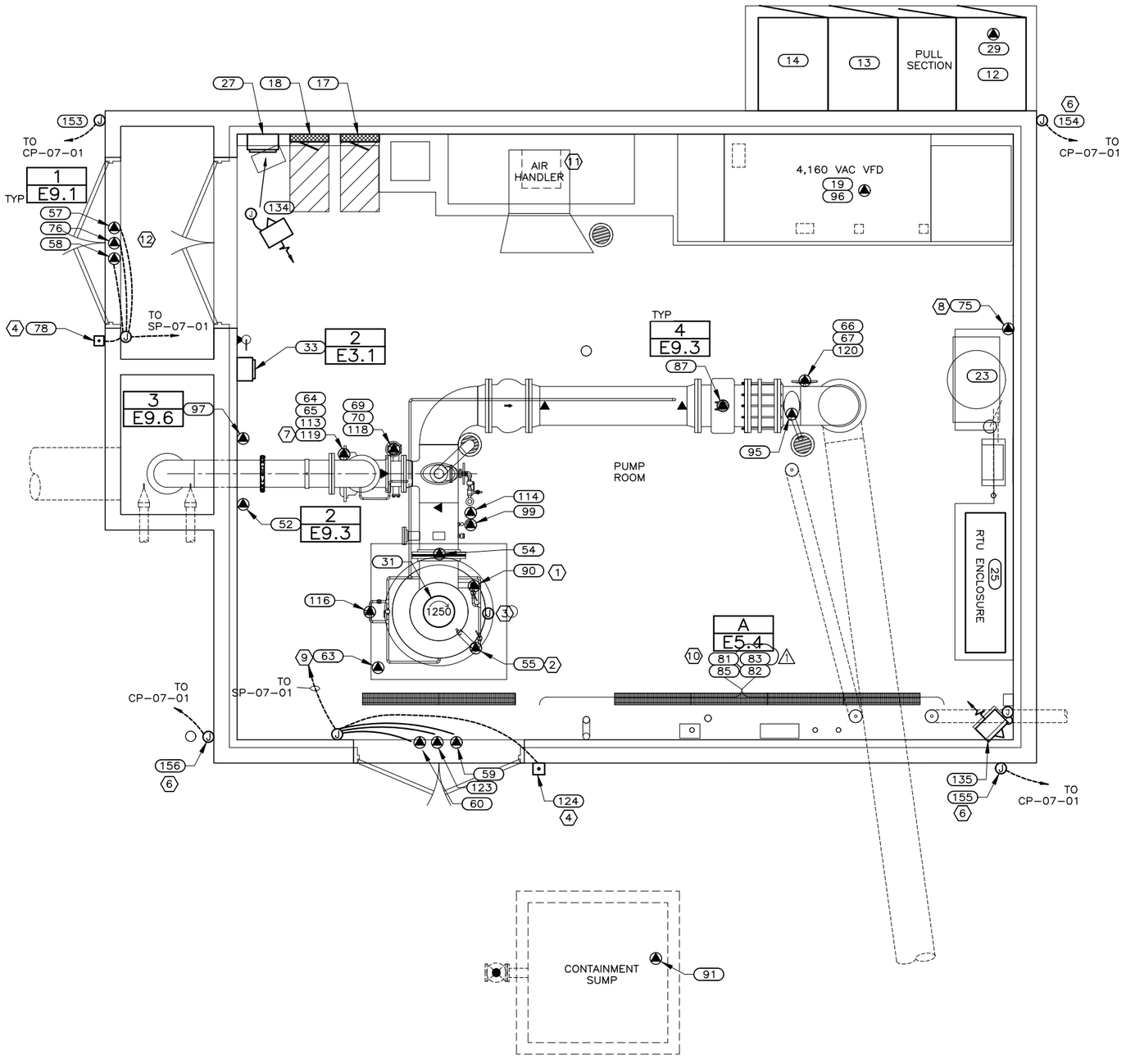
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 POWER PLAN

SHEET E6.7

207.27.200

7/04



0 2' 4' 8'
3/8"=1'-0"

N

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FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 7 INSTR. & CONTROL PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
12	MSD-07-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR
13	DFS-07-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
14	DFS-07-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
17	PNL-07-H	PANELBOARD H	PUMP RM.
18	PNL-07-L	PANELBOARD L	PUMP RM.
19	VFD-07-01	VARIABLE FREQUENCY DRIVE	PUMP RM.
23	AC-07-01	AIR COMPRESSOR	PUMP RM.
25	CP-07-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.
27	CP-07-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.
29	EM-07-1	ENERGY AND POWER MONITOR	SITE
31	P-07-01	WELL PUMP	PUMP RM.
33	SP-07-01	SECURITY PANEL	PUMP RM.
52	LSH-07-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.
54	PSH-07-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.
55	VSH-07-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.
57	ZS-07-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.
58	ZS-07-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.
59	ZS-07-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.
60	ZS-07-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.
63	ZS-07-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.
64	ZS-07-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.
65	ZS-07-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.
66	ZS-07-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.
67	ZS-07-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.
69	ZS-07-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.
70	ZS-07-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.
75	CSH-07-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.
76	ML-07-01	MAGNETIC DOOR LOCK	PUMP RM.
78	CR-07-01	ACCESS CARD READER	PUMP RM.
81	AIT-07-02	WELL TURBIDITY ANALYZER	PUMP RM.
~~82~~	~~AIT-07-03A~~	~~WELL pH ANALYZER~~	~~PUMP RM.~~
83	AIT-07-03B	WELL CONDUCTIVITY ANALYZER	PUMP RM.
~~85~~	~~AIT-07-03D~~	~~WATER TEMPERATURE TRANSMITTER~~	~~PUMP RM.~~
87	FIT-07-01	WELL FLOW METER	PUMP RM.
90	LT-07-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.
91	LT-07-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP
95	PT-07-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.
96	TE-07-01	MOTOR TEMPERATURE MONITOR	PUMP RM.
97	TT-07-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.
99	TT-07-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.
113	SV-07-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.
114	SV-07-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.
116	SV-07-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.
118	V-07-01	WASTE ISOLATION VALVE	PUMP RM.
119	V-07-02	PUMP-TO-WASTE VALVE	PUMP RM.
120	V-07-03	DISCHARGE VALVE	PUMP RM.
123	ML-07-03	MAGNETIC DOOR LOCK	PUMP RM.
124	CR-07-03	ACCESS CARD READER	PUMP RM.
134	UH-07-01	UNIT HEATER	PUMP RM.
135	UH-07-02	UNIT HEATER	PUMP RM.
153	JB-07-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR
154	JB-07-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
155	JB-07-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
156	JB-07-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR

GENERAL NOTES:

1. REFER TO ONE-LINE DIAGRAMS ON E2.1/E2.2 FOR WIRE AND CONDUIT REQUIREMENTS.
2. CONNECTION LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ELECTRICAL CONNECTION LOCATIONS ON SUBMITTAL LITERATURE PRIOR TO CONDUIT ROUGH-IN.
3. ITEMS LOCATED IN THE SURGE VAULT ARE SHOWN ON E5.3.

SHEET KEYNOTES:

1. SUBMERSIBLE PRESSURE TRANSMITTER INSTALLED IN PVC GUIDE TUBE ATTACHED TO WELL DISCHARGE COLUMN. VERIFY LOCATION OF ACCESS PORT PRIOR TO CONDUIT ROUGH-IN REFER TO CIVIL DRAWINGS FOR PROBE INSTALLATION DEPTH. J-BOX AND CONDUIT SYSTEM FOR TRANSDUCER SHALL BE ASSEMBLED WITHOUT OPENINGS SO AS TO NOT ALLOW INSECTS INTO THE WELL. SEAL ANY OPENINGS WITH SILICONE AS REQUIRED.
2. MOTOR VIBRATION SWITCH: VERIFY LOCATION ON MOTOR PRIOR TO CONDUIT ROUGH-IN. FLEX CONDUIT SHALL NOT EXCEED 48-INCHES. PROVIDE CONDUIT SUPPORT THAT CAN BE REMOVED FROM THE MOTOR BASE.
3. MOTOR RTD J-BOX: SAME CONDUIT REQUIREMENTS AS KEYNOTE 2.
4. LOCATE THE DOOR ACCESS CARD READER ON THE RIGHT SIDE OF THE ENTRANCE DOOR. MOUNTING HEIGHT SHALL BE +36-INCHES ABOVE FINISHED SURFACE.
5. NOT USED.
6. WALL CCTV JUNCTION BOX. INSTALL RECESSED IN WALL WITH BLANK COVER PLATE.
7. WASTE VALVE LOCATED BELOW WASTE PIPE.
8. INSTALL CURRENT SWITCH IN A/C DISCONNECT SWITCH.
9. LOCATED AT ROOF HATCH.
10. REFER TO E5.4 FOR WET WALL ELECTRICAL EQUIPMENT.
11. VERIFY LOCATION OF AIR HANDLER CONTROLS PRIOR TO CONDUIT ROUGH-IN.
12. A REMOVABLE TRANSOM PANEL EXISTS ABOVE THE DOOR. DO NOT INSTALL CONDUIT ON REMOVABLE PANEL.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

HANSEN ALLEN & LUCE, Inc. ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3	·	·	· ·
DRAFTED	KBH	2	·	·	· ·
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH KBH
DATE	MAY 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 7 I & C PLAN

SHEET E6.8

207.27.200

7/04

AVAILABLE FAULT CURRENT AT 12.47 KV

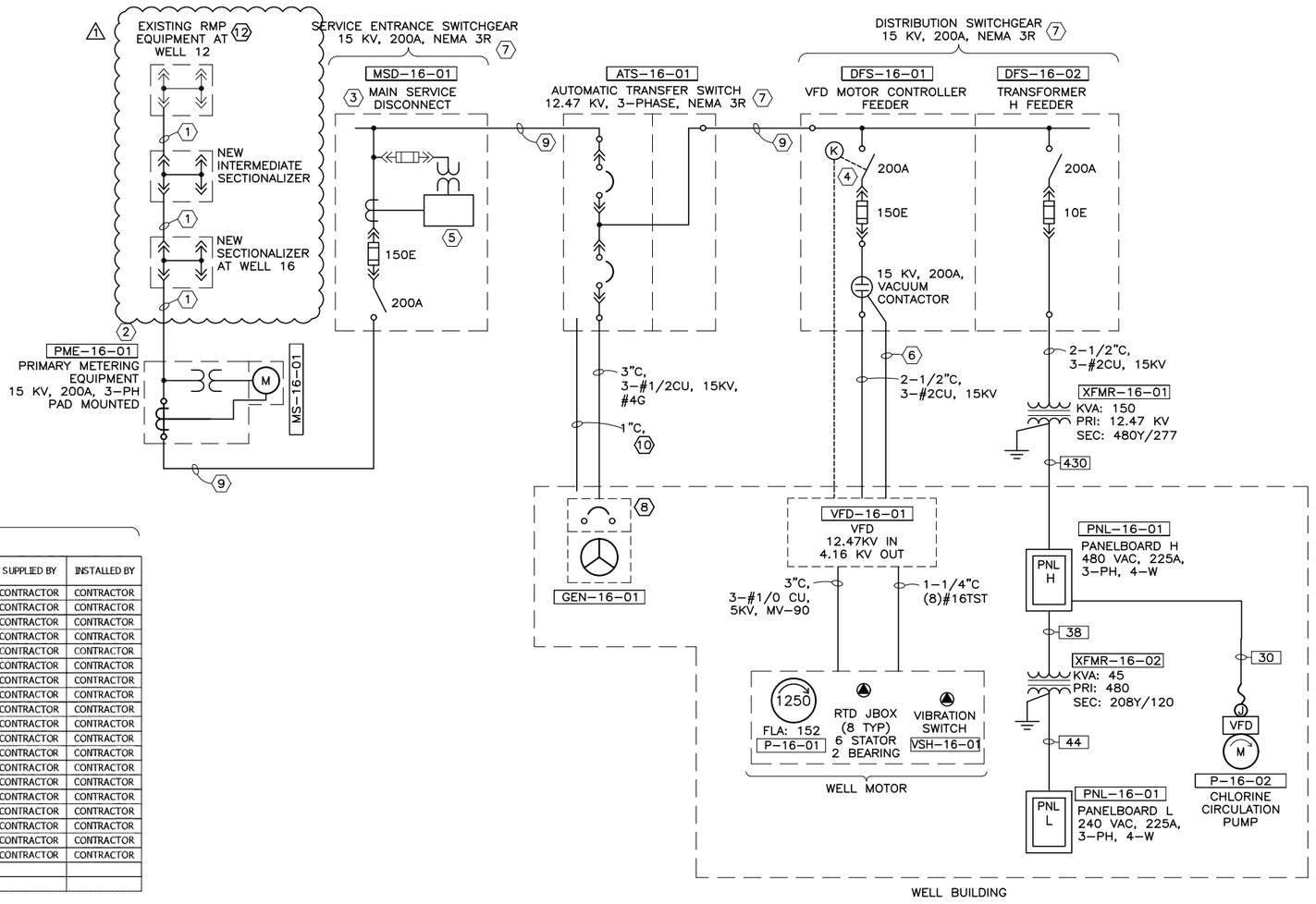
Primary System Fault Amps & Impedances

Short-Circuit Box

Node - PM_11406002.0088380/101160

Voltage	12.8	Amps
LLL	6902.38	Amps
LLG	7014	Amps
LL	6039	Amps
LG	5900	Amps
Dist to source	4410.6	feet

	Ohms	Per Unit	X/R
R:	0.2971	0.1911	3.63
X:	1.0779	0.6932	
Ro:	0.9174	0.5900	1.64
Xo:	1.5062	0.9686	



POWER ONE-LINE DIAGRAM

TABLES CONTINUED FROM E7.2

WELL 16 INSTRUMENTS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
73	ASH-16-01	CHLORINE LEAK DETECTOR	PUMP RM.	CONTRACTOR	CONTRACTOR
81	AIT-16-02	WELL TURBIDITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
82	AIT-16-03A	WELL pH ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
83	AIT-16-03B	WELL CONDUCTIVITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
84	AIT-16-03C	RESIDUAL CHLORINE ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
85	AIT-16-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
87	FIT-16-01	WELL FLOW METER	PUMP RM.	CONTRACTOR	CONTRACTOR
88	FT-16-03	IRRIGATION FLOW METER	SITE	CONTRACTOR	CONTRACTOR
89	FT-16-02	CHLORINE CIRCULATION FLOW METER	PUMP RM.	CONTRACTOR	CONTRACTOR
90	LT-16-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
91	LT-16-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP	CONTRACTOR	CONTRACTOR
93	LT-16-04	CON-VAULT FUEL LEVEL TRANSMITTER	SITE	CONTRACTOR	CONTRACTOR
95	PT-16-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
96	TE-16-01	MOTOR TEMPERATURE MONITOR	PUMP RM.	CONTRACTOR	CONTRACTOR
97	TT-16-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
98	TT-16-02	CHLORINE ROOM TEMPERATURE TRANSMITTER	CHLORINE RM.	CONTRACTOR	CONTRACTOR
99	TT-16-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
100	WIT-16-01	CHLORINE TANK SCALES TRANSMITTER	CHLORINE RM.	CONTRACTOR	CONTRACTOR
102	TT-16-03	GENERATOR ROOM TEMPERATURE TRANSMITTER	GENERATOR RM.	CONTRACTOR	CONTRACTOR

WELL 17 VALVES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
110	PV-16-01	CHLORINE PROPORTIONING VALVE	CHLORINE RM.	CONTRACTOR	CONTRACTOR
112	SV-16-02	SURGE TANK AIR RELEASE SOLENOID VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR
113	SV-16-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
114	SV-16-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
116	SV-16-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
118	V-16-01	WASTE ISOLATION VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
119	V-16-02	PUMP-TO-WASTE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
120	V-16-03	DISCHARGE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
121	V-16-04	SURGE TANK VALVE	SURGE VAULT	CONTRACTOR	CONTRACTOR

WELL 16 SECURITY ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
33	SP-16-01	SECURITY PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
57	ZS-16-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
58	ZS-16-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
59	ZS-16-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
60	ZS-16-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
61	ZS-16-03A	CHLORINE ROOM DOOR 3A POSITION SWITCH	CHLORINE RM.	CONTRACTOR	CONTRACTOR
62	ZS-16-03B	CHLORINE ROOM DOOR 3B POSITION SWITCH	CHLORINE RM.	CONTRACTOR	CONTRACTOR
63	ZS-16-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
76	ML-16-01	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
77	ML-16-02	MAGNETIC DOOR LOCK	CHLORINE RM.	CONTRACTOR	CONTRACTOR
78	CR-16-01	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
79	CR-16-02	ACCESS CARD READER	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
123	ML-16-03	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
124	CR-16-03	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
153	JB-16-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
154	JB-16-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
155	JB-16-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
156	JB-16-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
160	CCTV-16-01	SITE CAMERA 1 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR
161	CCTV-16-02	SITE CAMERA 2 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR

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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. REFER TO PLAN SHEETS FOR EQUIPMENT AND DEVICE LOCATIONS.
2. REFER TO CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
3. UTILITY COMPANY CONTACT: ALAN STEWART (801-360-1679), RODNEY.STEWART@ROCKYMOUNTAINPOWER.NET.
4. THE VFD AND MAIN SERVICE DISCONNECT EQUIPMENT SHALL BE FROM THE SAME MANUFACTURER.

SHEET KEYNOTES:

1. 6-IN CONDUIT. CONDUCTOR BY UTILITY COMPANY COORDINATE WITH RMP AS REQUIRED.
2. PRIMARY METERING ENCLOSURE: PROVIDED BY UTILITY COMPANY, INSTALLED BY CONTRACTOR ON A PAD/VAULT AS REQUIRED BY UTILITY COMPANY. UTILITY COMPANY SHALL PROVIDE PT'S, CT'S AND METER.
3. MAIN SERVICE DISCONNECT: 15 KV, 200A FUSED SWITCH IN NEMA 3R LOCKABLE ENCLOSURE. LABEL AS "MAIN SERVICE DISCONNECT". LABEL SWITCHBOARD WITH AVAILABLE FAULT CURRENT. SEE AVAILABLE FAULT CURRENT AT 12.47 KV TABLE ON THIS SHEET. LABEL AS REQUIRED BY NEC 110.24.
4. PROVIDE A KIRK-KEY INTERLOCK ON THE 15 KV VFD FUSED DISCONNECT AND THE VFD ENCLOSURE WITH 12 KV OR 4.16 KV COMPONENTS. VFD ENCLOSURE CANNOT BE OPENED UNLESS THE FUSED SWITCH IS OPEN.
5. THREE-PHASE POWER MONITOR WITH APPROPRIATE PT/CT'S FOR 12.47 KV SWITCHGEAR. EQUIPMENT SUPPLIER SHALL SIZE PT AND CT'S AS REQUIRED.
6. 3/4"C, WITH CONTROLS CONDUCTORS AS REQUIRED TO CONTROL THE VFD CONTACTOR.
7. EQUIPMENT SPACE HEATERS SHOWN ON PLAN DRAWINGS.
8. BACKUP POWER GENERATOR: 1500 KW, 12.47 KV, 3-PHASE, 4-WIRE DIESEL FUELED.
9. 3"C, 3-#2CU, 15 KV, #4G.
10. QUANTITY AND SIZE OF CONDUCTORS AS REQUIRED BY AUTOMATIC TRANSFER SWITCH TO AUTOMATICALLY START GENERATOR.
11. POWER FOR WELL 16 WILL BE SOURCED FROM THE EXISTING UTILITY EQUIPMENT EAST OF EXISTING WELL 12.

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE ENGINEERS

PROJECT ENGINEER

DESIGNED	KBH	3	·	·	· · ·
DRAFTED	KBH	2	·	·	· · ·
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH KBH
DATE	MAY 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

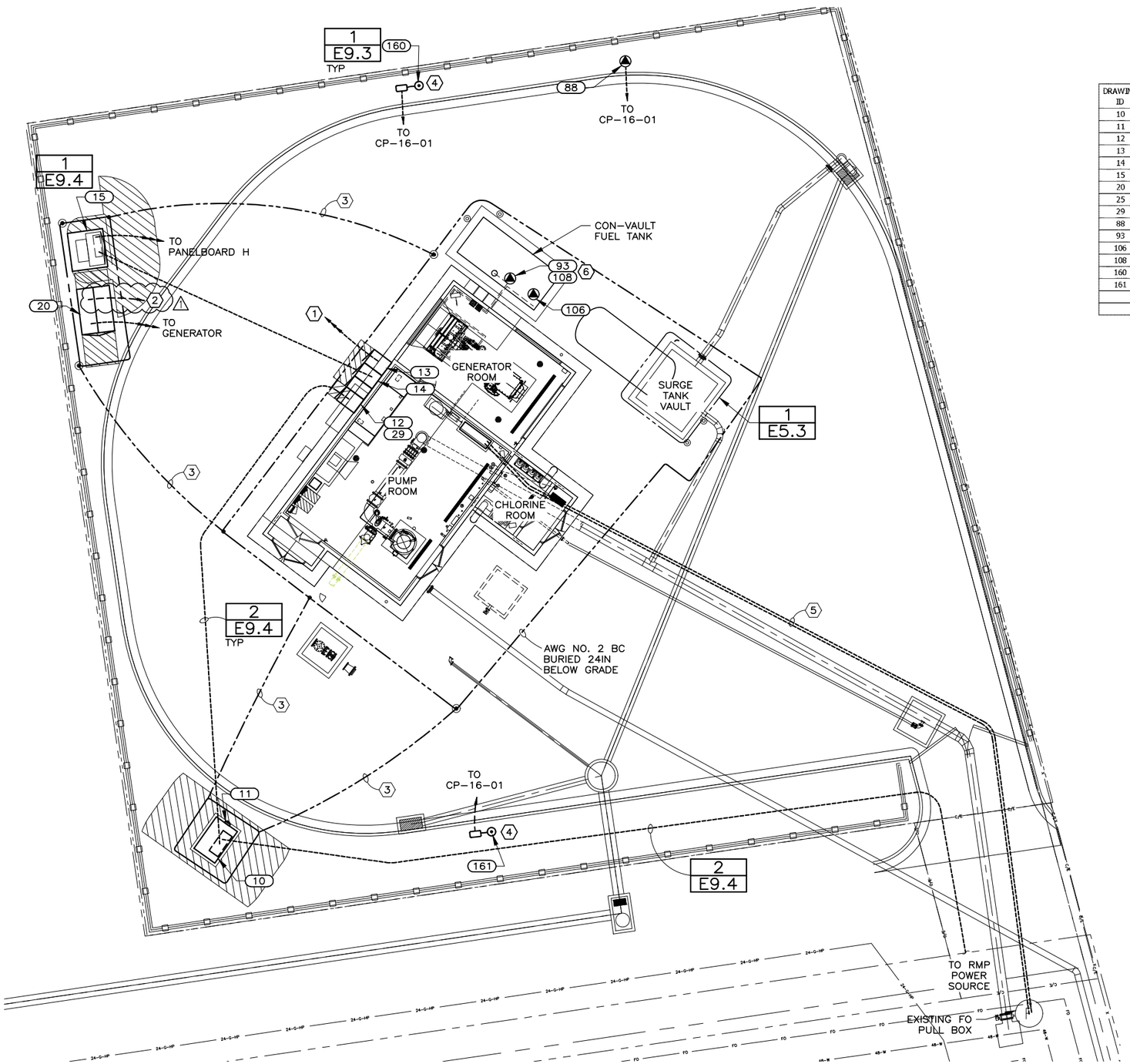
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL16 POWER ONE-LINE DIAGRAM

SHEET E7.3

207.27.200

7/04



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3/32"=1'-0"

N

WELL 16 ELECTRICAL SITE PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
10	PME-16-01	PRIMARY METERING EQIPMENT	UTILITY	SITE
11	MS-16-01	METER SOCKET	N/A	SITE
12	MSD-16-01	MAIN SERVICE DISCONNECT	PME-16-01	BLD. EXTERIOR
13	DFS-16-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-16-01	BLD. EXTERIOR
14	DFS-16-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-16-01	BLD. EXTERIOR
15	XFMR-16-01	TRANSFORMER H	SCB-16-02	SITE
20	ATS-16-01	AUTOMATIC TRANSFER SWITCH	GEN-16-01	SITE
25	CP-16-01	AIN CONTROL PANEL/REMOTE TELEMETRY UN	L-4	PUMP RM.
29	EM-16-1	ENERGY AND POWER MONITOR	L-18	SITE
88	FT-16-03	IRRIGATION FLOW METER	CP-16-01	SITE
93	LT-16-04	CON-VAULT FUEL LEVEL TRANSMITTER	CP-16-01	SITE
106	FP-16-01	FUEL POLISHING EQUIPMENT	L-23	SITE
108	LSH-16-03	DAY TANK LEAK SENSOR	CP-16-01	SITE
160	CCTV-16-01	SITE CAMERA 1 (FIXTURE F4)	CP-16-01	SITE
161	CCTV-16-02	SITE CAMERA 2 (FIXTURE F4)	CP-16-01	SITE

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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

GENERAL NOTES:

1. "HOME RUN" POWER SOURCE LISTED IN THE SITE PLAN ITEM TABLE ABOVE. REFER TI ONE-LINE DIAGRAM, PANEL SCHEDULES AND CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. FOR WIRE AND CONDUIT REQUIREMENTS, REFER TO THE POWER ONE-LINE AND/OR PANEL SCHEDULE FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT INFORMATION IS IN THE CONDUIT/CONDUCTOR TABLE ON E1.2.
3. ALL EXTERIOR EQUIPMENT PADS SHALL BE ELEVATED 3-INCHES ABOVE GRADE OR FINISHED SURFACE.

SHEET KEYNOTES:

1. TO VFD INSIDE BUILDING.
2. INSTALL ATS CONDENSATE HEATER CIRCUIT TO PANELBOARD L, SPACE 10.
3. EXTEND GROUND CONDUCTORS TO BUILDING GROUNDING RING. REFER TO BUILDING POWER PLAN.
4. AIM CAMERA TOWARD BUILDING ENTRY DOORS.
5. TWO 1-1/4" ORANGE HIGH DENSITY POLYETHYLENE (HDPE_ RATED DUCT.
   - 5.1. CONDUIT 1: 6-STRAND FIBER OPTIC CABLE.
   - 5.2. CONDUIT 2: LOCATING WIRE.
6. VERIFY LOCATION OF LEVEL SWITCH AND TRANSMITTER WITH TANK SUPPLIER DURING CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

FILE NAME:
FILE DATE:

DESIGNED	KBH	3	·	·	·	·	
DRAFTED	KBH	2	·	·	·	·	
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH	KBH	
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

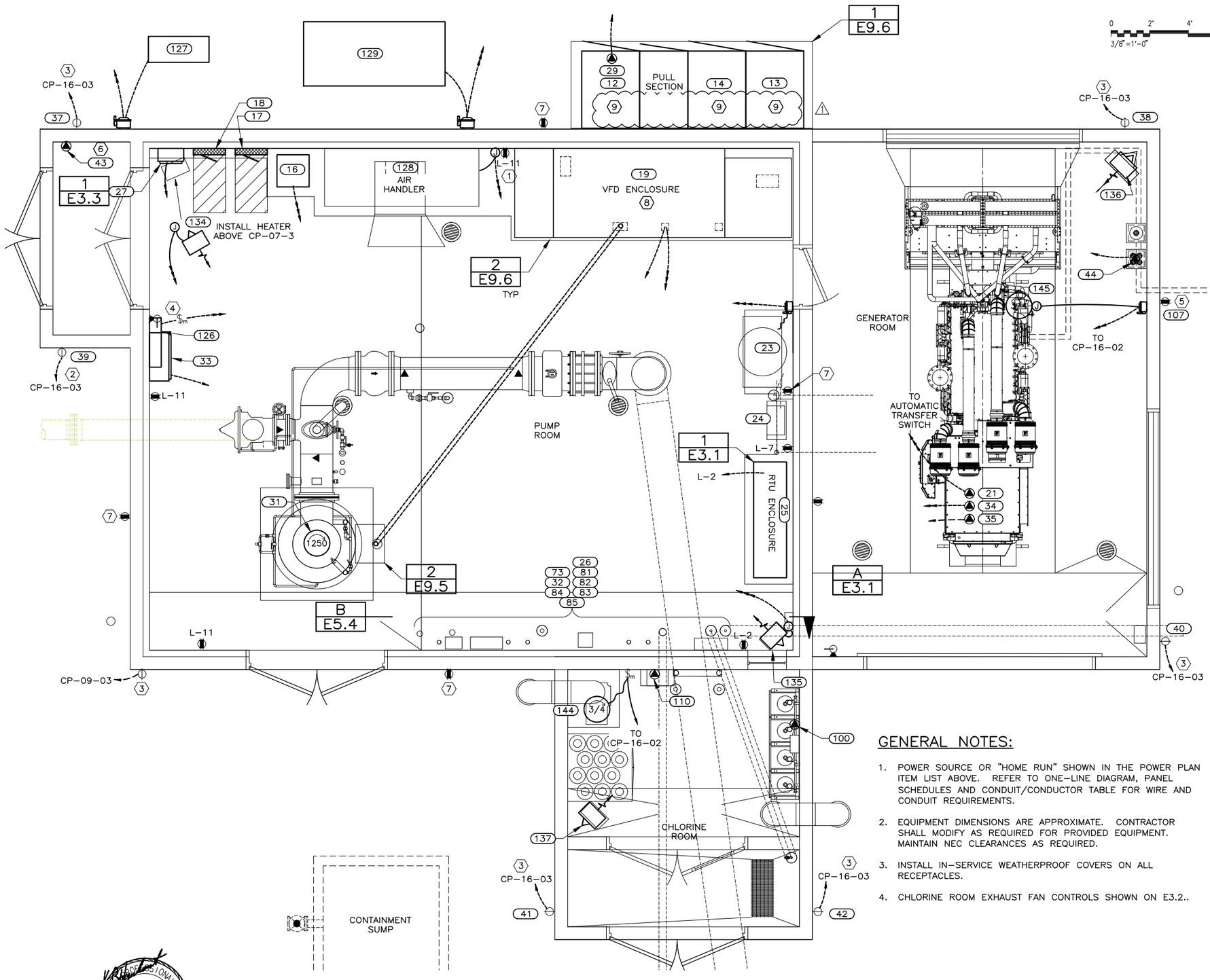
CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 SITE PLAN

SHEET E7.4

207.27.200

7/04



H.P.E. INC. ELECTRICAL ENGINEERS
POWER SYSTEMS, CONTROL & INSTRUMENTATION SYSTEMS
HEGERHORST POWER ENGINEERING INCORPORATED
708 EAST 50 SOUTH
AMERICAN FORK, UT 84003
(801) 642-2051
FAX (801) 642-2154
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

0 2' 4' 8'
3/8"=1'-0"

WELL 16 POWER PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
12	MSD-16-01	MAIN SERVICE DISCONNECT	PME-16-01	BLD. EXTERIOR
13	DFS-16-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-16-01	BLD. EXTERIOR
14	DFS-16-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-16-01	BLD. EXTERIOR
16	XFMR-16-02	TRANSFOMER L	H-1,3,5	PUMP RM.
17	PNL-16-H	PANELBOARD H	XFMR-16-01	PUMP RM.
18	PNL-16-L	PANELBOARD L	XFMR-16-02	PUMP RM.
19	VFD-16-01	VARIABLE FREQUENCY DRIVE	SCB-16-01	PUMP RM.
21	GEN-16-01	BACKUP POWER GENERATOR	N/A	GENERATOR RM.
23	AC-16-01	AIR COMPRESSOR	H-8,10,12	PUMP RM.
24	AD-16-01	AIR DRYER	L-7	PUMP RM.
25	CP-16-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
26	CP-16-02	SMALL MOTOR CONTROL PANEL	L-25,27	PUMP RM.
27	CP-16-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	L-5,7	PUMP RM.
29	EM-16-1	ENERGY AND POWER MONITOR	L-18	SITE
31	P-16-01	WELL PUMP	VFD-16-01	PUMP RM.
32	P-16-02	CHLORINE CIRCULATION PUMP	H-20,22,24	PUMP RM.
33	SP-16-01	SECURITY PANEL	L-12	PUMP RM.
34	BC-16-01	GENERATOR BATTERY CHARGER	L-24	GENERATOR RM.
35	JWH-16-01	GENERATOR JACKET WATER HEATER	L-20,22	GENERATOR RM.
37	IM-16-01	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
38	IM-16-02	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
39	IM-16-03	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
40	IM-16-04	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
41	IM-16-05	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
42	IM-16-06	ICE MELT RECEPTACLE	CP-16-03	BLD. EXTERIOR
43	IT-16-01	IRRIGATION VALVE TIMER	L-15	PUMP RM.
44	DT-16-01	GENERATOR DAY TANK	L-39	GENERATOR RM.
73	ASH-16-01	CHLORINE LEAK DETECTOR	L-29	PUMP RM.
B1	AIT-16-02	WELL TURBIDITY ANALYZER	L-5	PUMP RM.
B2	AIT-16-03A	WELL pH ANALYZER	L-6	PUMP RM.
B3	AIT-16-03B	WELL CONDUCTIVITY ANALYZER	L-6	PUMP RM.
B4	AIT-16-03C	RESIDUAL CHLORINE ANALYZER	L-6	PUMP RM.
B5	AIT-16-03D	WATER TEMPERATURE TRANSMITTER	CP-16-01	PUMP RM.
100	WIT-16-01	CHLORINE TANK SCALES TRANSMITTER	L-37	CHLORINE RM.
107	FHT-16-01	FUEL PIPE HEAT TRACING	L-41	SITE
110	PV-16-01	CHLORINE PROPORTIONING VALVE	L-31	CHLORINE RM.
126	FC-16-01	INDOOR FAN COIL UNIT	L-34,36	PUMP RM.
127	MCU-16-01	OUTDOOR CONDENSIONG UNIT	L-30,32	PUMP RM.
12B	AH-16-01	AIR HANDLER	L-20,22,24	PUMP RM.
129	CU-16-01	CONDENSING UNIT	H-14,16,18	PUMP RM.
134	UH-16-01	UNIT HEATER	H-13,15,17	PUMP RM.
135	UH-16-02	UNIT HEATER	H-19,21,23	PUMP RM.
136	UH-16-03	UNIT HEATER	H-25,27,29	GENERATOR RM.
137	UH-16-04	UNIT HEATER	H-31,33,38	CHLORINE RM.
144	EF-16-01	EXHAUST FAN	CP-16-02	CHLORINE RM.
145	EF-16-02	EXHAUST FAN	CP-16-02	GENERATOR RM.

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" SHOWN IN THE POWER PLAN ITEM LIST ABOVE. REFER TO ONE-LINE DIAGRAM, PANEL SCHEDULES AND CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. EQUIPMENT DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL MODIFY AS REQUIRED FOR PROVIDED EQUIPMENT. MAINTAIN NEC CLEARANCES AS REQUIRED.
3. INSTALL IN-SERVICE WEATHERPROOF COVERS ON ALL RECEPTACLES.
4. CHLORINE ROOM EXHAUST FAN CONTROLS SHOWN ON E3.2..

SHEET KEYNOTES:

1. INSTALL A MANUAL STARTER AS THE DISCONNECT MEANS FOR AH-16-01. FIELD LOCATE BELOW THE AIR HANDLER.
2. SEE INSTRUMENTATION ELEVATION FOR HEIGHT OF DEVICE.
3. RECEPTACLE FOR ICE MELT CABLE. PROVIDE IN-SERVICE WEATHERPROOF COVER. FOR INSTALLATION REQUIREMENTS REFER TO WIRING DIAGRAM ON SEE SHEET E3.3.
4. INSTALL MANUAL STARTER NEAR SECURITY ENCLOSURE. LABEL AS "AIR HANDLER DISCONNECT".
5. LOCATE OUTLET WITHIN 12-INCHES OF FUEL PIPE WHERE IT ENTERS THE BUILDING. PROVIDE IN-SERVICE W/P COVER. COORDINATE HEIGHT DURING CONSTRUCTION WITH FUEL PIPE INSTALLER.
6. PROVIDE AND INSTALL A 2-INCH PVC CONDUIT FROM BELOW THE IRRIGATION TIMER TO THE IRRIGATION VALVE AREA. VALVE AREA IS NEAR THE IRRIGATION METER SHOWN ON THE E7.4 SITE PLAN.
7. INSTALL RECEPTACLE +18". WIRE TO CIRCUIT L-16. PROVIDE IN-SERVICE WEATHERPROOF COVER.
8. VFD INCLUDES 120 VAC SPACE HEATER CIRCUIT (L-10) AND 480 VAC FAN POWER CIRCUIT (H-7,9,11). REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
9. SWITCHGEAR CONDENSATE HEATER CIRCUITS: MSD-16-01, CKT. L-12. FUSED DISCONNECT SWITCH DFS-16-01, CKT. L-14. FUSED DISCONNECT SWITCH DFS-16-02, DKT. L-16.

FILE NAME:
FILE DATE:

REGISTERED PROFESSIONAL ENGINEER No. 86-171214-2202 KEITH B. HEGERHORST 5/19/2023 STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3			
DRAFTED	KBH	2			
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH KBH
DATE	MAY 2023	NO.	DATE	REVISIONS	BY APVD.

SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 16 POWER PLAN

SHEET E7.7
207.27.200

7/04

WELL 17 CONTROL PANEL CP-17-03

LOCATION: PUMP ROOM		MFGR: N/A				N/A AMPS				VOLTS: 208/120		
DIMENSIONS:		TYPE: CUSTOM								PHASE: 1		
MOUNTING: SURFACE		NEMA: 12								WIRES: 3		
FEED: BOTTOM										FED FROM: PANELBOARD L		
						PHASE LOADS						
BRKR			WIRE	CONT.	N-CONT.		A		B			
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.		
30	2	ICE MELT CABLES	20	1,716		1	858		858			
20	1	EXTERIOR LIGHTING	212	97		2	97					
10	1	CONTROL POWER	212	137		3	137					
	1	SPACE				4						
		TOTAL WATTS:		1,950	0		1,092	0	858	0	0	0
		CONTINUOUS LOAD:		1,950								
		CONTINUOUS LOAD * 125%:		2,438								
		NON-CONTINUOUS LOAD:		0								
		DESIGN WATTS:		2,438								
		MIN. RATING (AMPS):		12								

WELL 17 CONTROL PANEL CP-17-04

LOCATION: SURGE TANK VAULT		MFGR: N/A				N/A AMPS				VOLTS: 240/120		
DIMENSIONS: 20"W x 8"D x 24"H		TYPE: CUSTOM				30 M.C.B.				PHASE: 1		
MOUNTING: SURFACE		NEMA: 12								WIRES: 3		
FEED: SIDE						10,000 A.I.C.				FED FROM: PANELBOARD L		
						PHASE LOADS						
BRKR			WIRE	CONT.	N-CONT.		A		B			
A	P	DESCRIPTION	SIZE	WATTS	WATTS	NO	CONT.	N-CONT.	CONT.	N-CONT.		
20	1	RECPT. SUMP PUMP (SP-17-01)	212	1,180		1	1,180	0				
20	1	VAULT LIGHTS	212	76		3			76	0		
20	1	VAULT OUTLET	212		180	5	0	180				
15	1	EXHAUST FAN (EF-17-02)	212	150		7			150	0		
20	2	UNIT HEATER (UH-17-03)	212		2,000	9	0	1,000	0	1,000		
20	1	SPARE				11			0	0		
	1	SPACE				13	0	0				
	1	SPACE				15			0	0		
		TOTAL WATTS:		1,406	2,180		1,180	1,180	226	1,000		
		CONTINUOUS LOAD:		1,406								
		CONTINUOUS LOAD * 125%:		1,758								
		NON-CONTINUOUS LOAD:		2,180								
		DESIGN WATTS:		3,938								
		MIN. RATING (AMPS):		16								

WELL 17 SECURITY ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
33	SP-17-01	SECURITY PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
57	ZS-17-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
58	ZS-17-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
59	ZS-17-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
60	ZS-17-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
63	ZS-17-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
76	ML-17-01	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
78	CR-17-01	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
123	ML-17-03	MAGNETIC DOOR LOCK	PUMP RM.	CONTRACTOR	CONTRACTOR
124	CR-17-03	ACCESS CARD READER	PUMP RM.	CONTRACTOR	CONTRACTOR
153	JB-17-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
154	JB-17-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
155	JB-17-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
156	JB-17-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
160	CCTV-17-01	SITE CAMERA 1 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR
161	CCTV-17-02	SITE CAMERA 2 (FIXTURE F4)	SITE	CONTRACTOR	CONTRACTOR

PROJECT TAG LIST

WELL 17 HVAC EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
126	FC-17-01	INDOOR FAN COIL UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
127	MCU-17-01	OUTDOOR CONDENSIONG UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
128	AH-17-01	AIR HANDLER	PUMP RM.	CONTRACTOR	CONTRACTOR
129	CU-17-01	CONDENSING UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
134	UH-17-01	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR
135	UH-17-02	UNIT HEATER	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 17 PUMP AND EQUIPMENT

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
10	PME-17-01	PRIMARY METERING EQIPMENT	SITE	UTILITY CO.	UTILITY CO.
11	MS-17-01	METER SOCKET	SITE	CONTRACTOR	CONTRACTOR
12	MSD-17-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
15	XFMR-17-01	TRANSFORMER H	SITE	CONTRACTOR	CONTRACTOR
16	XFMR-17-02	TRANSFOMER L	PUMP RM.	CONTRACTOR	CONTRACTOR
17	PNL-17-H	PANELBOARD H	PUMP RM.	CONTRACTOR	CONTRACTOR
18	PNL-17-L	PANELBOARD L	PUMP RM.	CONTRACTOR	CONTRACTOR
19	VED-17-01	VARIABLE FREQUENCY DRIVE	PUMP RM.	CONTRACTOR	CONTRACTOR
23	AC-17-01	AIR COMPRESSOR	PUMP RM.	CONTRACTOR	CONTRACTOR
24	AD-17-01	AIR DRYER	PUMP RM.	CONTRACTOR	CONTRACTOR
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.	CONTRACTOR	CONTRACTOR
27	CP-17-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.	CONTRACTOR	CONTRACTOR
29	EM-17-1	ENERGY AND POWER MONITOR	SITE	CONTRACTOR	CONTRACTOR
30	PC-17-01	LIGHTING PHOTOCELL	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
31	P-17-01	WELL PUMP	PUMP RM.	CONTRACTOR	CONTRACTOR
37	IM-17-01	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
38	IM-17-02	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
39	IM-17-03	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
40	IM-17-04	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
41	IM-17-05	ICE MELT RECEPTACLE	BLD. EXTERIOR	CONTRACTOR	CONTRACTOR
43	IT-17-01	IRRIGATION VALVE TIMER	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 17 SWITCHES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
52	LSH-17-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
54	PSH-17-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
55	VSH-17-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
64	ZS-17-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
65	ZS-17-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
66	ZS-17-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
67	ZS-17-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
68	ZS-17-07	SURGE TANK VAULT HATCH POSITION SWITCH	SURGE VAULT	CONTRACTOR	CONTRACTOR
69	ZS-17-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
70	ZS-17-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR
75	CSH-17-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 17 INSTRUMENTS

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
81	AIT-17-02	WELL TURBIDITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
82	AIT-17-03A	WELL pH ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
83	AIT-17-03B	WELL CONDUCTIVITY ANALYZER	PUMP RM.	CONTRACTOR	CONTRACTOR
85	AIT-17-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
87	FIT-17-01	WELL FLOW METER	PUMP RM.	CONTRACTOR	CONTRACTOR
88	FT-17-03	IRRIGATION FLOW METER	SITE	CONTRACTOR	CONTRACTOR
90	LT-17-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
91	LT-17-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP	CONTRACTOR	CONTRACTOR
95	PT-17-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
96	TE-17-01	MOTOR TEMPERATURE MONITOR	PUMP RM.	CONTRACTOR	CONTRACTOR
97	TT-17-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR
99	TT-17-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.	CONTRACTOR	CONTRACTOR

WELL 17 VALVES

DRAWING ID	TAG	DESCRIPTION	LOCATION	SUPPLIED BY	INSTALLED BY
113	SV-17-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
114	SV-17-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
116	SV-17-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
118	V-17-01	WASTE ISOLATION VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
119	V-17-02	PUMP-TO-WASTE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR
120	V-17-03	DISCHARGE VALVE	PUMP RM.	CONTRACTOR	CONTRACTOR

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708 EAST 50 SOUTH FAX (801) 642-2154
AMERICAN FORK, UT 84003

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

WELL 17 MCP/RTU INPUT/OUTPUT LIST

IO TYPE	DESCRIPTION	DEVICE OR INSTRUMENT	TAG
AI	CONTAINMENT SUMP LEVEL	LT-XX-02	LT-17-02
AI	PUMP RM. TEMPERATURE	TT-XX-01	TT-17-01
AI	SURGE TANK WATER LEVEL	DPT-XX-01	DPT-17-01
AI	SYSTEM PRESSURE	PT-XX-01	PT-17-01
AI	WELL CONDUCTIVITY	AIT-XX-03B	AIT-17-03B
AI	WELL DISCHARGE WATER TEMPERATURE	TT-XX-03	TT-17-03
AI	WELL FLOW	FIT-XX-01	FIT-17-01
AI	WELL pH	AIT-XX-03A	AIT-17-03A
AI	WELL TURBIDITY	AIT-XX-02	AIT-17-02
AI	WELL VFD RUNNING SPEED	VFD-XX-01	VFD-17-01
AI	WELL WATER LEVEL	LT-XX-01	LT-17-01
AI	WELL WATER TEMPERATURE TRANSMITTER	AIT-XX-03D	AIT-17-03D
AO	WELL VFD COMMAND SPEED	VFD-XX-01	VFD-17-01
DI	AIR COMPRESSOR HIGH CURRENT	CSH-XX-01	CSH-17-01
DI	DISCHARGE VALVE FULL CLOSED POSITION	ZS-XX-06B	ZS-17-06B
DI	DISCHARGE VALVE FULL OPEN POSITION	ZS-XX-06A	ZS-17-06A
DI	EYE WASH FLOW (FUTURE)	FS-XX-02	FS-17-02
DI	MAINTENANCE DOOR DOOR 2A NOT CLOSED	ZS-XX-02A	ZS-17-02A
DI	MAINTENANCE DOOR DOOR 2B NOT CLOSED	ZS-XX-02B	ZS-17-02B
DI	MOTOR HIGH TEMPERATURE SHUTDOWN	TE-XX-01	TE-17-01
DI	PUMP RM. DOOR 1A NOT CLOSED	ZS-XX-01A	ZS-17-01A
DI	PUMP RM. DOOR 1B NOT CLOSED	ZS-XX-01B	ZS-17-01B
DI	PUMP RM. HATCH NOT CLOSED	ZS-XX-04	ZS-17-04
DI	PUMP ROOM COOLING ON	AH-XX-01	AH-17-01
DI	PUMP ROOM HIGH FLOOR WATER ALARM	LSH-XX-01	LSH-17-01
DI	SURGE TANK VAULT FLOOR HIGH WATER ALARM	LSH-XX-02	LSH-17-02
DI	SURGE TANK VAULT HATCH NOT CLOSED	ZS-XX-07	ZS-17-07
DI	SURGE VALVE FULL CLOSED POSITION	ZS-XX-09B	ZS-17-09B
DI	SURGE VALVE FULL OPEN POSITION	ZS-XX-09A	ZS-17-09A
DI	SURGE VAULT SUMP PUMP FLOW	FS-XX-01	FS-17-01
DI	WASTE ISOLATION VALVE FULL CLOSED POSITION	ZS-XX-08B	ZS-17-08B
DI	WASTE ISOLATION VALVE NOT OPEN POSITION	ZS-XX-08A	ZS-17-08A
DI	WASTE VALVE FULL SYSTEM POSITION	ZS-XX-05B	ZS-17-05B
DI	WASTE VALVE WASTE FULL WASTE POSITION	ZS-XX-05A	ZS-17-05A
DI	WELL HIGH DISCHARGE PRESSURE	PSH-XX-01	PSH-17-01
DI	WELL MOTOR HIGH VIBRATION	VSH-XX-01	VSH-17-01
DI	WELL VFD FAULT	VFD-XX-01	VFD-17-01
DI	WELL VFD HOA IN AUTO	VFD-XX-01	VFD-17-01
DI	WELL VFD HOA IN HAND	VFD-XX-01	VFD-17-01
DI	WELL VFD RUNNING	VFD-XX-01	VFD-17-01
DI	WELL VFD TRANSFORMER OVERTEMPERATURE	VFD-XX-01	VFD-17-01
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-02	UH-17-02
DO	EXHAUST FAN	EF-XX-03	EF-17-03
DO	PUMP ROOM UNIT HEATER RUN	UH-XX-01	UH-17-01
DO	SURGE TANK AIR RELEASE SOLENOID VALVE OPEN	SV-XX-02	SV-17-02
DO	SURGE TANK AIR SUPPLY SOLENOID OPEN	SV-XX-01	SV-17-01
DO	TURBIDITY SUPPLY SOLENOID VALVE OPEN	SV-XX-06	SV-17-06
DO	WASTE VALVE PILOT SOLENOID VALVE OPEN	SV-XX-03	SV-17-03
DO	WELL PRE-LUBE SOLENOID VALVE OPEN	SV-XX-0B	SV-17-0B
DO	WELL VFD REMOTE RUN	VFD-XX-01	VFD-17-01
RS485	WELL MOTOR TERMPERATURES	TE-XX-01	TE-17-01
TCP/IP	WELL VFD PARAMETERS	VFD-XX-01	VFD-17-01

REGISTERED PROFESSIONAL ENGINEER
No. 86-171214-2202
KEITH B. HEGERHORST
5/19/2023
STATE OF UTAH
PROJECT ENGINEER

DESIGNED	KBH	3	·	·	·	·	
DRAFTED	KBH	2	·	·	·	·	
CHECKED	KBH	1	06/01/23	ADDENDUM NO. 1	KBH	KBH	
DATE	MAY 2023	NO.	DATE	REVISIONS	BY	APVD.	

SCALE: NONE

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

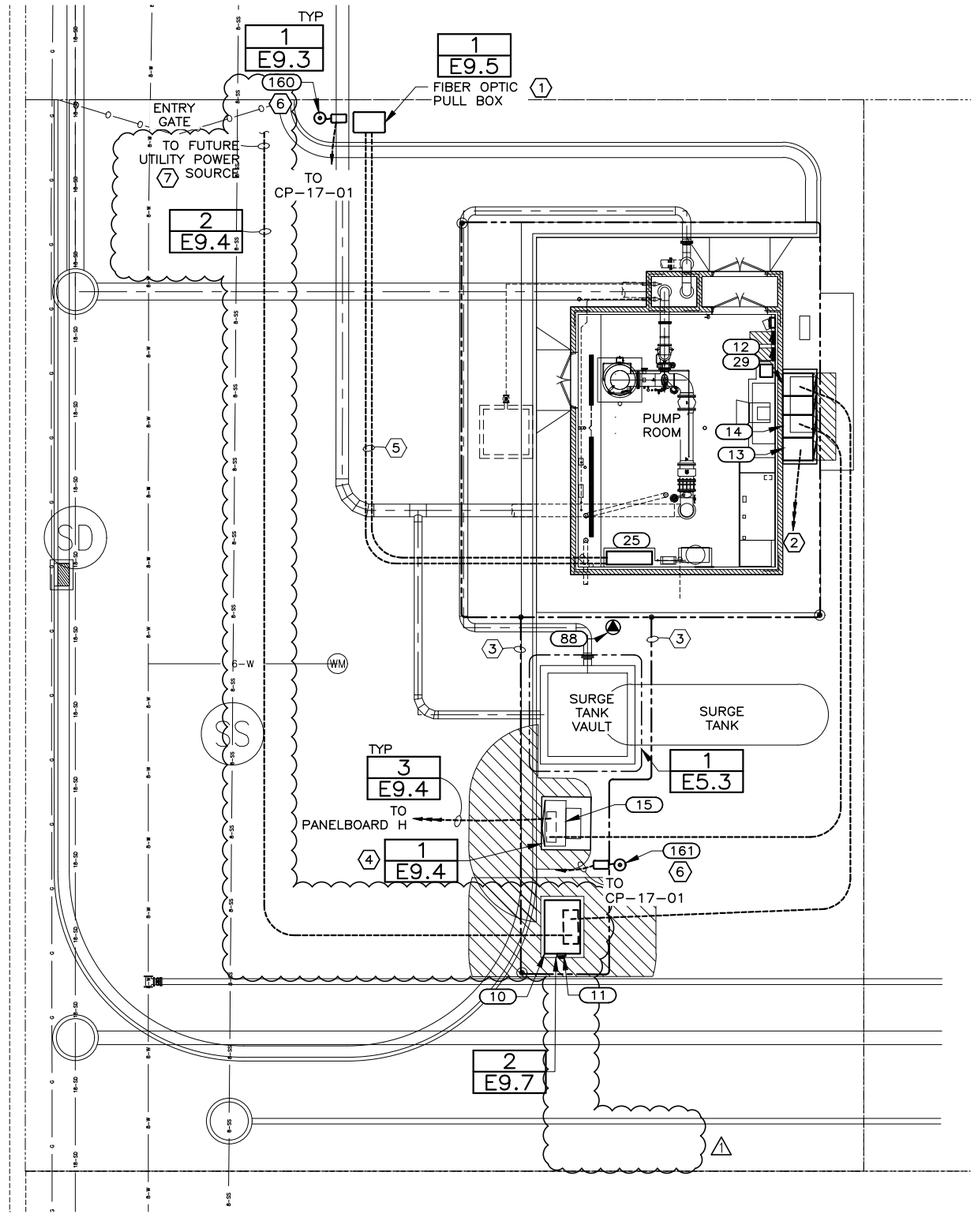
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 SCHEDULES, SHT. 2

SHEET E8.2

207.27.200

FILE NAME:
FILE DATE:

7/04



0 5' 10' 20' 30'

1"=10'

N

WELL 17 ELECTRICAL SITE PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
10	PME-17-01	PRIMARY METERING EQUIPMENT	UTILITY	SITE
11	MS-17-01	METER SOCKET	N/A	SITE
12	MSD-17-01	MAIN SERVICE DISCONNECT	PME-17-01	BLD. EXTERIOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-17-01	BLD. EXTERIOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-17-01	BLD. EXTERIOR
15	XFMR-17-01	TRANSFORMER H	SCB-17-02	SITE
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
29	EM-17-1	ENERGY AND POWER MONITOR	L-18	SITE
88	FT-17-03	IRRIGATION FLOW METER	CP-17-01	SITE
160	CCTV-17-01	SITE CAMERA 1 (FIXTURE F4)	CP-17-01	SITE
161	CCTV-17-02	SITE CAMERA 2 (FIXTURE F4)	CP-17-01	SITE

GENERAL NOTES:

1. "HOME RUN" POWER SOURCE LISTED IN THE SITE PLAN ITEM TABLE ABOVE.
2. FOR WIRE AND CONDUIT REQUIREMENTS, REFER TO THE POWER ONE-LINE AND/OR PANEL SCHEDULE FOR THE CIRCUIT ID, THEN THE WIRE AND CONDUIT INFORMATION IS IN THE CONDUIT/CONDUCTOR TABLE ON E1.2.
3. NO OFF-SITE UTILITY CONDUIT INSTALLATION IS ANTICIPATED FOR THIS WELL.

SHEET KEYNOTES:

1. UDOT TYPE III PULL BOX, SEE 1/E9.5.
2. TO VFD INSIDE BUILDING.
3. EXTEND GROUND CONDUCTORS TO BUILDING GROUNDING RING. REFER TO BUILDING POWER PLAN.
4. EXTEND TRANSFORMER PAD TO BACK OF CURB.
5. TWO 1-1/4" ORANGE HIGH DENSITY POLYETHYLENE (HDPE_ RATED DUCT.
   - 5.1. CONDUIT 1: 6-STRAND FIBER OPTIC CABLE.
   - 5.2. CONDUIT 2: LOCATING WIRE.
6. AIM CAMERA TOWARDS BUILDING ENTRY DOORS.
7. INSTALL SERVICE CONDUIT TO 5-FT NORTH OF WELL PROPERTY AND ACCURATELY IDENTIFY LOCATION ON AS-BUILD DRAWINGS. COORDINATE FINAL LOCATION WITH CUWCD DURING CONSTRUCTION.

H.P.E. INC. ELECTRICAL ENGINEERS
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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

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SCALE: AS SHOWN

CENTRAL UTAH WATER CONSERVANCY DISTRICT

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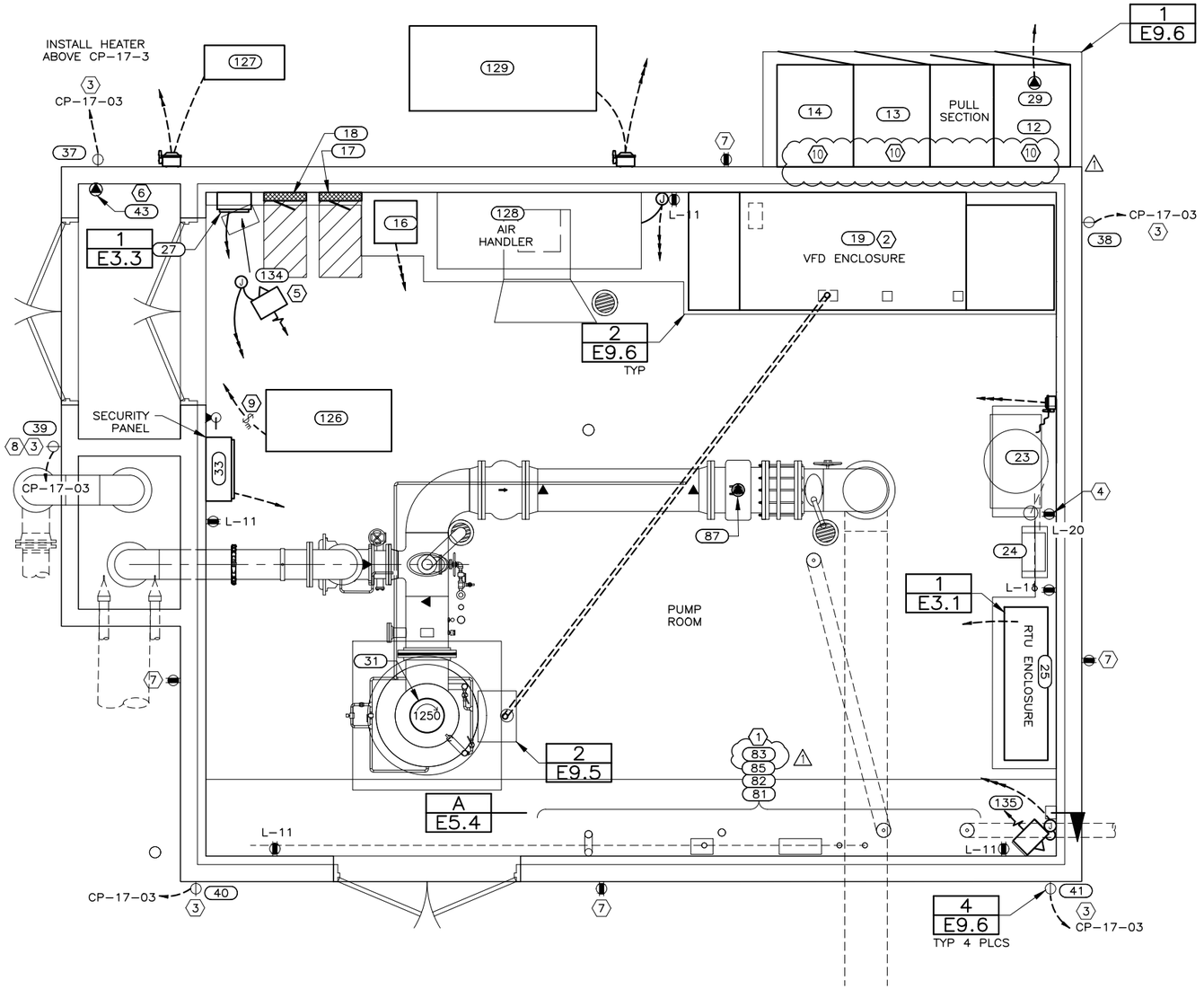
PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 SITE PLAN

SHEET E8.4

207.27.200

7/04



0 2' 4' 8'
3/8"=1'-0"

WELL 17 POWER PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	POWER SOURCE	LOCATION
12	MSD-17-01	MAIN SERVICE DISCONNECT	PME-17-01	BLD. EXTERIOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-17-01	BLD. EXTERIOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	MSD-17-01	BLD. EXTERIOR
16	XFMR-17-02	TRANSFOMER L	H-1,3,5	PUMP RM.
17	PNL-17-H	PANELBOARD H	XFMR-17-01	PUMP RM.
18	PNL-17-L	PANELBOARD L	XFMR-17-02	PUMP RM.
19	VFD-17-01	VARIABLE FREQUENCY DRIVE	SCB-17-01	PUMP RM.
23	AC-17-01	AIR COMPRESSOR	H-8,10,12	PUMP RM.
24	AD-17-01	AIR DRYER	L-7	PUMP RM.
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	L-4	PUMP RM.
27	CP-17-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	L-5,7	PUMP RM.
29	EM-17-1	ENERGY AND POWER MONITOR	L-18	SITE
31	P-17-01	WELL PUMP	VFD-17-01	PUMP RM.
33	SP-17-01	SECURITY PANEL	L-12	PUMP RM.
37	IM-17-01	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
38	IM-17-02	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
39	IM-17-03	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
40	IM-17-04	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
41	IM-17-05	ICE MELT RECEPTACLE	CP-17-03	BLD. EXTERIOR
43	IT-17-01	IRRIGATION VALVE TIMER	L-15	PUMP RM.
81	AIT-17-02	WELL TURBIDITY ANALYZER	L-5	PUMP RM.
82	AIT-17-03A	WELL pH ANALYZER	L-6	PUMP RM.
83	AIT-17-03B	WELL CONDUCTIVITY ANALYZER	L-6	PUMP RM.
85	AIT-17-03C	WATER TEMPERATURE TRANSMITTER	CP-17-01	PUMP RM.
87	FIT-17-01	WELL FLOW METER	CP-17-01	PUMP RM.
126	FC-17-01	INDOOR FAN COIL UNIT	L-34,36	PUMP RM.
127	MCU-17-01	OUTDOOR CONDENSIONG UNIT	L-30,32	PUMP RM.
128	AH-17-01	AIR HANDLER	L-20,22,24	PUMP RM.
129	CU-17-01	CONDENSING UNIT	H-14,16,18	PUMP RM.
134	UH-17-01	UNIT HEATER	H-13,15,17	PUMP RM.
135	UH-17-02	UNIT HEATER	H-19,21,23	PUMP RM.

GENERAL NOTES:

1. POWER SOURCE OR "HOME RUN" SHOWN IN THE POWER PLAN ITEM LIST ABOVE. REFER TO ONE-LINE DIAGRAM, PANEL SCHEDULES AND CONDUIT/CONDUCTOR TABLE FOR WIRE AND CONDUIT REQUIREMENTS.
2. EQUIPMENT DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHALL MODIFY AS REQUIRED FOR PROVIDED EQUIPMENT. MAINTAIN NEC CLEARANCES AS REQUIRED.
3. INSTALL IN-SERVICE WEATHERPROOF COVERS ON ALL RECEPTACLES.

SHEET KEYNOTES:

1. REFER TO WELL 17 WET WALL ELEVATION ON E5.4 FOR LOCATIONS OF WATER CHEMISTRY INSTRUMENTS. SEE INSTRUMENTATION ELEVATION FOR HEIGHT OF DEVICE.
2. VFD INCLUDES 120 VAC SPACE HEATER CIRCUIT (L-10) AND 480 VAC FAN POWER CIRCUIT (H-7,9,11). REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
3. RECEPTACLE FOR ICE MELT CABLE. PROVIDE IN-SERVICE WEATHERPROOF COVER. FOR INSTALLATION REQUIREMENTS REFER TO WIRING DIAGRAM ON SEE SHEET E3.3.
4. RECEPTACLE FOR AIR DRYER. INSTALL BELOW AIR DRYER.
5. INSTALL UNIT HEATER ABOVE CP-17-03.
6. PROVIDE AND INSTALL A 2-INCH PVC CONDUIT FROM BELOW THE IRRIGATION TIMER TO THE IRRIGATION VALVE AREA. VALVE AREA IS NEAR THE IRRIGATION METER SHOWN ON THE E8.4 SITE PLAN.
7. INSTALL RECEPTACLE +18". WIRE TO CIRCUIT L-13. PROVIDE IN-SERVICE WEATHERPROOF COVER.
8. DOWNSPOUT DISCHARGES INTO WASTE BASIN. INSTALL RECEPTACLE FOR ICE MELT 8-IN ABOVE WASTE BASIN TOP-OF-WALL. DO NOT INSTALL RECEPTACLE IN BASIN.
9. INSTALL MANUAL STARTER NEAR SECURITY ENCLOSURE AND LABEL AS "FAN COIL DISCONNECT".
10. SWITCHGEAR CONDENSATE HEATER CIRCUITS: MSD-17-01, CKT. L-12. FUSED DISCONNECT SWITCH DFS-17-01, CKT. L-14. FUSED DISCONNECT SWITCH DFS-17-02, DKT. L-16.

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AMERICAN FORK, UT 84003
HPE PROJECT 20.111

FOR INFORMATION ABOUT THIS JOB, PLEASE CONTACT: KEITH HEGERHORST

FILE NAME:
FILE DATE:

HANSEN ALLEN & LUCE ENGINEERS

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PROJECT ENGINEER

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SCALE: AS SHOWN

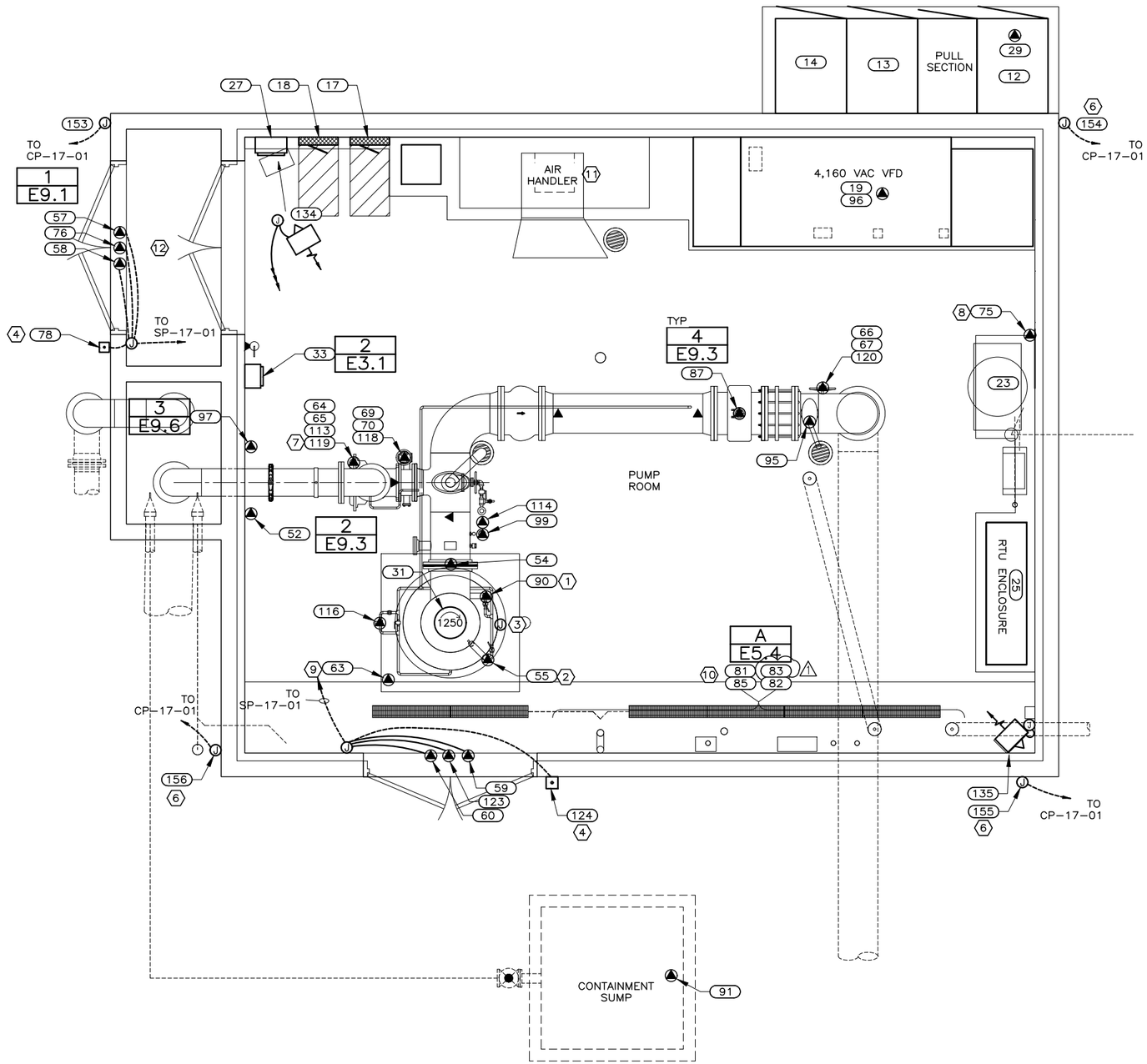
CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 POWER PLAN

SHEET E8.7
207.27.200

7/04



0 2' 4' 8'

3/8"=1'-0"

N

WELL 17 INSTR. & CONTROL PLAN ITEMS

DRAWING ID	TAG	DESCRIPTION	LOCATION
12	MSD-17-01	MAIN SERVICE DISCONNECT	BLD. EXTERIOR
13	DFS-17-01	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
14	DFS-17-02	DISTRIBUTION EQUIPMENT FUSED SWITCH	BLD. EXTERIOR
17	PNL-17-H	PANELBOARD H	PUMP RM.
18	PNL-17-L	PANELBOARD L	PUMP RM.
19	VFD-17-01	VARIABLE FREQUENCY DRIVE	PUMP RM.
23	AC-17-01	AIR COMPRESSOR	PUMP RM.
25	CP-17-01	MAIN CONTROL PANEL/REMOTE TELEMETRY UNIT	PUMP RM.
27	CP-17-03	EXTERIOR LIGHTS/ICE MELT CONTROL PANEL	PUMP RM.
29	EM-17-1	ENERGY AND POWER MONITOR	SITE
31	P-17-01	WELL PUMP	PUMP RM.
33	SP-17-01	SECURITY PANEL	PUMP RM.
52	LSH-17-01	PUMP RM. FLOOR HIGH WATER SWITCH	PUMP RM.
54	PSH-17-01	WELL HIGH DISCHARGE PRESSURE SWITCH	PUMP RM.
55	VSH-17-01	WELL MOTOR HIGH VIBRATION SWITCH	PUMP RM.
57	ZS-17-01A	PUMP RM. DOOR 1A POSITION SWITCH	PUMP RM.
58	ZS-17-01B	PUMP RM. DOOR 1B POSITION SWITCH	PUMP RM.
59	ZS-17-02A	MAINTENANCE DOOR DOOR 2A POSITION SWITCH	PUMP RM.
60	ZS-17-02B	MAINTENANCE DOOR DOOR 2B POSITION SWITCH	PUMP RM.
63	ZS-17-04	PUMP RM. HATCH POSITION SWITCH	PUMP RM.
64	ZS-17-05A	WASTE VALVE WASTE POSITION SWITCH	PUMP RM.
65	ZS-17-05B	WASTE VALVE SYSTEM POSITION SWITCH	PUMP RM.
66	ZS-17-06A	DISCHARGE VALVE OPEN POSITION SWITCH	PUMP RM.
67	ZS-17-06B	DISCHARGE VALVE CLOSED POSITION SWITCH	PUMP RM.
69	ZS-17-08A	WASTE ISOLATION VALVE OPEN POSITION SWITCH	PUMP RM.
70	ZS-17-08B	WASTE ISOLATION VALVE CLOSED POSITION SWITCH	PUMP RM.
75	CSH-17-01	AIR COMPRESSOR CURRENT SWITCH	PUMP RM.
76	ML-17-01	MAGNETIC DOOR LOCK	PUMP RM.
78	CR-17-01	ACCESS CARD READER	PUMP RM.
B1	AIT-17-02	WELL TURBIDITY ANALYZER	PUMP RM.
82	AIT-17-03A	WELL pH ANALYZER	PUMP RM.
1 83	AIT-17-03B	WELL CONDUCTIVITY ANALYZER	PUMP RM.
85	AIT-17-03D	WATER TEMPERATURE TRANSMITTER	PUMP RM.
87	FIT-17-01	WELL FLOW METER	PUMP RM.
90	LT-17-01	WELL WATER LEVEL TRANSMITTER	PUMP RM.
91	LT-17-02	CONTAINMENT SUMP LEVEL TRANSMITTER	CONTAINMENT SUMP
95	PT-17-01	SYSTEM PRESSURE TRANSMITTER	PUMP RM.
96	TE-17-01	MOTOR TEMPERATURE MONITOR	PUMP RM.
97	TT-17-01	PUMP RM. TEMPERATURE TRANSMITTER	PUMP RM.
99	TT-17-03	WELL DISCHARGE WATER TEMPERATURE TRANSMITTER	PUMP RM.
113	SV-17-03	WASTE VALVE PILOT SOLENOID VALVE	PUMP RM.
114	SV-17-06	TURBIDITY SUPPLY SOLENOID VALVE	PUMP RM.
116	SV-17-08	WELL PRE-LUBE SOLENOID VALVE	PUMP RM.
118	V-17-01	WASTE ISOLATION VALVE	PUMP RM.
119	V-17-02	PUMP-TO-WASTE VALVE	PUMP RM.
120	V-17-03	DISCHARGE VALVE	PUMP RM.
123	ML-17-03	MAGNETIC DOOR LOCK	PUMP RM.
124	CR-17-03	ACCESS CARD READER	PUMP RM.
134	UH-17-01	UNIT HEATER	PUMP RM.
135	UH-17-02	UNIT HEATER	PUMP RM.
153	JB-17-01	SECURITY J-BOX (ACTIVE CAMERA)	BLD. EXTERIOR
154	JB-17-02	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
155	JB-17-03	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR
156	JB-17-04	SECURITY J-BOX (FUTURE CAMERA)	BLD. EXTERIOR

GENERAL NOTES:

1. REFER TO ONE-LINE DIAGRAMS ON E2.1/E2.2 FOR WIRE AND CONDUIT REQUIREMENTS.
2. CONNECTION LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ELECTRICAL CONNECTION LOCATIONS ON SUBMITTAL LITERATURE PRIOR TO CONDUIT ROUGH-IN.
3. ITEMS LOCATED IN THE SURGE VAULT ARE SHOWN ON E5.0.

SHEET KEYNOTES:

1. SUBMERSIBLE PRESSURE TRANSMITTER INSTALLED IN PVC GUIDE TUBE ATTACHED TO WELL DISCHARGE COLUMN. VERIFY LOCATION OF ACCESS PORT PRIOR TO CONDUIT ROUGH-IN REFER TO CIVIL DRAWINGS FOR PROBE INSTALLATION DEPTH. J-BOX AND CONDUIT SYSTEM FOR TRANSDUCER SHALL BE ASSEMBLED WITHOUT OPENINGS SO AS TO NOT ALLOW INSECTS INTO THE WELL. SEAL ANY OPENINGS WITH SILICONE AS REQUIRED.
2. MOTOR VIBRATION SWITCH: VERIFY LOCATION ON MOTOR PRIOR TO CONDUIT ROUGH-IN. FLEX CONDUIT SHALL NOT EXCEED 48-INCHES. PROVIDE CONDUIT SUPPORT THAT CAN BE REMOVED FROM THE MOTOR BASE.
3. MOTOR RTD J-BOX: SAME CONDUIT REQUIREMENTS AS KEYNOTE 2.
4. LOCATE THE DOOR ACCESS CARD READER ON THE RIGHT SIDE OF THE ENTRANCE DOOR. MOUNTING HEIGHT SHALL BE +36-INCHES ABOVE FINISHED SURFACE.
5. NOT USED.
6. WALL CCTV JUNCTION BOX. INSTALL RECESSED IN WALL WITH BLANK COVER PLATE.
7. WASTE VALVE LOCATED BELOW WASTE PIPE.
8. INSTALL CURRENT SWITCH IN A/C DISCONNECT SWITCH.
9. LOCATED AT ROOF HATCH.
10. REFER TO E5.4 FOR WET WALL ELECTRICAL EQUIPMENT.
11. VERIFY LOCATION OF AIR HANDLER CONTROLS PRIOR TO CONDUIT ROUGH-IN.
12. A REMOVABLE TRANSOM PANEL EXISTS ABOVE THE DOOR. DO NOT INSTALL CONDUIT ON REMOVABLE PANEL.

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CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

PUMP HOUSE PROJECT WELLS #7, #16 & #17
ELECTRICAL
WELL 17 I & C PLAN

SHEET E8.8

207.27.200

7/04